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Verbal Skills

Verbal Chapter

Synonyms and Antonyms Practice Set 1

1. **Answer choice (a) is the correct answer.** Benevolent means kind or charitable.

2. **Answer choice (a) is the correct answer.** Unbiased means fair, so the opposite is prejudiced, which means biased.

3. **Answer choice (b) is the correct answer.** Abnormal means not normal or unusual.

4. **Answer choice (b) is the correct answer.** Obsolete means no longer used or outdated.

5. **Answer choice (d) is the correct answer.** Abstract means theoretical, which is the opposite of actual or concrete.

6. **Answer choice (b) is the correct answer.** Impulsive means done on impulse without thinking, or hasty.

7. **Answer choice (a) is the correct answer.** Daunting means seeming difficult or intimidating.

8. **Answer choice (b) is the correct answer.** Commence means to start or begin, which is the opposite of conclude or end.

9. **Answer choice (c) is the correct answer.** Hinder means to get in the way of something or obstruct it, which is the opposite of help.

10. **Answer choice (d) is the correct answer.** Inconsequential means insignificant, which is the opposite of significant.

11. **Answer choice (c) is the correct answer.** Forbid means to not allow, or to ban.

12. **Answer choice (b) is the correct answer.** Concealed means hidden, which is the opposite of visible.

13. **Answer choice (c) is the correct answer.** Abating means lessening or reducing.

14. **Answer choice (d) is the correct answer.** Abandon means to leave or desert something or someone.

15. **Answer choice (d) is the correct answer.** Indolent means lazy, which is the opposite of active.

16. **Answer choice (c) is the correct answer.** Tranquil means calm or serene.

17. **Answer choice (c) is the correct answer.** Diverse means showing a lot of variety, or varied.

18. **Answer choice (b) is the correct answer.** Novel means new or original, which is the opposite of common or familiar.

19. **Answer choice (d) is the correct answer.** Ingenious means creative or inventive, which is the opposite of unimaginative.

20. **Answer choice (a) is the correct answer.** Apprehensive means worried or wary.

Synonyms and Antonyms Practice Set 2

1. **Answer choice (a) is the correct answer.** Impoverished means poor or destitute.

2. **Answer choice (b) is the correct answer.** Regretful means you feel remorseful or sorry.

3. **Answer choice (c) is the correct answer.** Somber means dark and gloomy, which is the opposite of cheerful or happy.

4. **Answer choice (a) is the correct answer.** Trivial means insignificant, which is the opposite of meaningful.

5. **Answer choice (c) is the correct answer.** Irrelevant means not important, which is the opposite of important.

6. **Answer choice (b) is the correct answer.** Resilient means able to withstand or recover quickly from difficult situations, which is similar to being tough.

7. **Answer choice (d) is the correct answer.** Concede means to give in or accept something, usually defeat.

8. **Answer choice (d) is the correct answer.** Aggravate means to annoy or provoke someone or something.

9. **Answer choice (c) is the correct answer.** Docile means obedient or submissive, which is the opposite of stubborn or willful.

10. **Answer choice (a) is the correct answer.** Insolent means ill-mannered or disrespectful.

11. **Answer choice (d) is the correct answer.** Listless means lacking energy, which is the opposite of lively.

12. **Answer choice (b) is the correct answer.** Apathy means lack of interest, or indifference.

13. **Answer choice (c) is the correct answer.** Resign means to give up or abdicate.

14. **Answer choice (d) is the correct answer.** Grueling means very difficult, which is the opposite of effortless.

15. **Answer choice (d) is the correct answer.** Obscure means difficult to understand, or cryptic.

16. **Answer choice (c) is the correct answer.** Prolific means creative, inventive, or productive.

17. **Answer choice (a) is the correct answer.** Deliberate means intentional, which is the opposite of accidental.

18. **Answer choice (b) is the correct answer.** Mandatory means obligatory or required.

19. **Answer choice (b) is the correct answer.** Naive means lacking experience, wisdom, or judgment, which is the opposite of experienced.

20. **Answer choice (c) is the correct answer.** Illogical means lacking clear reasoning, or not logical, which is the opposite of sensible.

Synonyms and Antonyms Practice Set 3

1. **Answer choice (d) is the correct answer.** Frugal means thrifty, or conservative with money, which is the opposite of generous.

2. **Answer choice (a) is the correct answer.** Contemporary means present-day or modern.

3. **Answer choice (a) is the correct answer.** Object means to go against something, which is the opposite of accept.

4. **Answer choice (b) is the correct answer.** Subtle means understated, which is the opposite of evident or obvious.

5. **Answer choice (a) is the correct answer.** Juvenile means relating to young people, or youthful.

6. **Answer choice (d) is the correct answer.** Melancholy means sad, which is the opposite of cheerful.

7. **Answer choice (c) is the correct answer.** Fleeting means lasting for only a short time, or transient.

8. **Answer choice (b) is the correct answer.** Banal means very common, or cliche, which is the opposite of original or innovative.

9. **Answer choice (c) is the correct answer.** Tedious means very routine or boring.

10. **Answer choice (d) is the correct answer.** Callous means cold or uncaring, which is the opposite of caring or compassionate.

11. **Answer choice (a) is the correct answer.** Conform means to comply with standards or rules, which the opposite of oppose or go against.

12. **Answer choice (c) is the correct answer.** Emulate means to copy or imitate something or someone.

13. **Answer choice (b) is the correct answer.** Immaculate means spotless or perfectly clean, which is the opposite of imperfect.

14. **Answer choice (a) is the correct answer.** Nonchalant means laid-back or easygoing.

15. **Answer choice (c) is the correct answer.** Pretentious means arrogant, pompous, or egotistical.

16. **Answer choice (b) is the correct answer.** Modest means humble, which is the opposite of egotistical.

17. **Answer choice (a) is the correct answer.** Reclusive means secluded, isolated, or withdrawn.

18. **Answer choice (c) is the correct answer.** Tactless means lacking tact or sensitivity, which is the opposite of polite.

19. **Answer choice (d) is the correct answer.** Vigilant means attentive, observant or watchful.

20. **Answer choice (b) is the correct answer.** Confident means hopeful or assured, which is the opposite of doubtful.

Synonyms and Antonyms Practice Set 4

1. **Answer choice (a) is the correct answer.** Patronizing means treating someone in a way that makes them feel inferior, or condescending.

2. **Answer choice (b) is the correct answer.** Meek means quiet, submissive, or compliant.

3. **Answer choice (c) is the correct answer.** Clandestine means secretive, which is the opposite of obvious or overt.

4. **Answer choice (a) is the correct answer.** Affluent means wealthy or rich, which is the opposite of poor or impoverished.

5. **Answer choice (c) is the correct answer.** Superior means better than, which is the opposite of worse than, or inferior.

6. **Answer choice (b) is the correct answer.** Ample means more than enough, which is the opposite of not enough, or meager.

7. **Answer choice (d) is the correct answer.** Widespread means found over a large area or number of people, or extensive.

8. **Answer choice (a) is the correct answer.** Injustice means wrongdoing, unfairness, or grievance.

9. **Answer choice (a) is the correct answer.** Serene means peaceful or calm.

10. **Answer choice (d) is the correct answer.** Wager means to gamble or bet.

11. **Answer choice (c) is the correct answer.** Disrespectful means lacking respect, courtesy, or politeness, which is the opposite of courteous.

12. **Answer choice (b) is the correct answer.** Hate means to strongly dislike something, which is the opposite of love, or revere.

13. **Answer choice (d) is the correct answer.** Cautious means careful or prudent.

14. **Answer choice (b) is the correct answer.** Empathetic means compassionate or understanding, which is the opposite of uncaring or uncompassionate.

15. **Answer choice (b) is the correct answer.** Audible means able to be heard, or detectable.

16. **Answer choice (c) is the correct answer.** Indisputable means not able to be disputed, or undeniable, which is the opposite of uncertain or dubious.

17. **Answer choice (a) is the correct answer.** Fathomable means something that can be understood or comprehended, which is the same as understandable.

18. **Answer choice (b) is the correct answer.** Vibrant means lively and colorful.

19. **Answer choice (d) is the correct answer.** Surprising means unexpected, which is the opposite of expected.

20. **Answer choice (d) is the correct answer.** Knowledgeable means well informed, which is the opposite of unaware.

Word Classifications Practice Set 1

1. **Answer choice (d) is the correct answer.** Music, reading, and television are all types of entertainment. Since entertainment is the general category, it does not belong.

2. **Answer choice (b) is the correct answer.** Instantaneous, swift, and immediate all mean fast. Prolonged means drawn out which is the opposite, so it does not belong.

3. **Answer choice (a) is the correct answer.** San Francisco, Chicago, and Austin are all cities. Texas is a state, so it does not belong.

4. **Answer choice (c) is the correct answer.** Spatula, pan, and whisk are all tools used for cooking. Since cooking is the general category, it does not belong.

5. **Answer choice (b) is the correct answer.** Dolphins, bears, and bats are all mammals. Since mammal is the general category, it does not belong.

6. **Answer choice (b) is the correct answer.** Candles, flashlights, and lamps are all man made sources of light. Sun is a natural source of light, so it does not belong.

7. **Answer choice (a) is the correct answer.** Stubborn, adamant, and obstinate all mean headstrong. Submissive means obedient, which is the opposite, so it does not belong.

8. **Answer choice (d) is the correct answer.** Bed, dresser, and ottoman are all types of furniture. Since furniture is the general category, it does not belong.

9. **Answer choice (b) is the correct answer.** Ice skating, skiing, and snowboarding are all winter or snow sports. Soccer is not played in the snow, so it does not belong.

10. **Answer choice (c) is the correct answer.** Tundra, mountain, and desert are all types of landscapes. Since landscape is the general category, it does not belong.

11. **Answer choice (b) is the correct answer.** Carpenter, teacher, and lawyer are all types of occupations. Since occupation is the general category, it does not belong.

12. **Answer choice (c) is the correct answer.** Fracture, concussion, and sprain are all types of injuries. Since injury is the general category, it does not belong.

13. **Answer choice (c) is the correct answer.** Novel, original, and eccentric are all similar to different. Commonplace means normal, which is the opposite, so it does not belong.

14. **Answer choice (d) is the correct answer.** Cardigans, jackets, and sweaters are all worn on your body and arms. A scarf is worn around your neck, so it does not belong.

15. **Answer choice (b) is the correct answer.** Car, train, and plane are all types of transportation. Since transportation is the general category, it does not belong.

16. **Answer choice (a) is the correct answer.** Honest, frank, and candid all mean telling the truth. Deceitful means lying, which is the opposite, so it does not belong.

17. **Answer choice (b) is the correct answer.** Math, history, and science are all subjects in school. Since school is the general category, it does not belong.

18. **Answer choice (d) is the correct answer.** Charismatic, outgoing, and shy are all types of personalities. Since personality is the general category, it does not belong.

19. **Answer choice (a) is the correct answer.** Exhausted, fatigued, and enervated all mean very tired. Lively means energized, which is the opposite, so it does not belong.

20. **Answer choice (b) is the correct answer.** Ponds, rivers, and streams are all bodies of freshwater. An ocean is a body of saltwater, so it does not belong.

Word Classifications Practice Set 2

1. **Answer choice (c) is the correct answer.** Gymnastics, basketball, and cricket are all types of sports. Since sports is the general category, it does not belong.

2. **Answer choice (d) is the correct answer.** Ebullient, vibrant, and energetic all mean full of energy. Sluggish means inactive, which is the opposite, so it does not belong.

3. **Answer choice (c) is the correct answer.** Shampoo, conditioner, and soap are all used in the shower. Since shower is the general category, it does not belong.

4. **Answer choice (b) is the correct answer.** Proximate, neighboring, and vicinity all mean close by. Separate means apart, which is the opposite, so it does not belong.

5. **Answer choice (a) is the correct answer.** Elated, jubilant and overwhelmed are all types of feelings. Since feeling is the general category, it does not belong.

6. **Answer choice (a) is the correct answer.** High school, elementary school, and university are all types of schools. A dorm is a room that students stay in during college or university. Since a dorm is not a type of school, it does not belong.

7. **Answer choice (c) is the correct answer.** Gallons, quarts, and pints all measure volume. Pounds measure weight, so it does not belong.

8. **Answer choice (a) is the correct answer.** Yellow, blue, and red are all primary colors. Purple is a secondary color, so it does not belong.

9. **Answer choice (c) is the correct answer.** Complex, intricate, and sophisticated all mean advanced. Simple means easy or basic, which is the opposite, so it does not belong.

10. **Answer choice (d) is the correct answer.** Guzzle, gorge, and devour all mean to aggressively eat or drink. Snack means to eat a snack or light meal, so it does not belong.

11. **Answer choice (b) is the correct answer.** Breakfast, lunch and dinner are all meals. Since meal is the general category, it does not belong.

12. **Answer choice (c) is the correct answer.** Earth, Venus, and Jupiter are all planets. The sun is a star and not a planet, so it does not belong.

13. **Answer choice (a) is the correct answer.** Influenza, tuberculosis, and pneumonia are all types of ailments. Since ailment is the general category, it does not belong.

14. **Answer choice (a) is the correct answer.** A clarinet, flute, and piccolo are all woodwind instruments. A harp is a string instrument, so it does not belong.

15. **Answer choice (a) is the correct answer.** Trout, salmon, and tuna are all fish. A dolphin is a mammal, so it does not belong.

16. **Answer choice (d) is the correct answer.** A bay, pond, and ocean are all bodies of water. A peninsula is an area of land, so it does not belong.

17. **Answer choice (d) is the correct answer.** Snakes, lizards, and turtles are all reptiles. Since reptile is the general category, it does not belong.

18. **Answer choice (b) is the correct answer.** A petal, stem, and stigma are all parts of a flower. Since flower is the general category, it does not belong.

19. **Answer choice (c) is the correct answer.** A skyscraper, a townhouse, and a condominium are all a type of building. Since building is the general category, it does not belong.

20. **Answer choice (b) is the correct answer.** Sneaky, stealthy, and sly all mean done in a secretive way. Obvious means clear, which is the opposite, so it does not belong.

Word Classifications Practice Set 3

1. **Answer choice (d) is the correct answer.** Brown, gray, and beige are all neutral colors. Pink is not a neutral color, so it does not belong.

2. **Answer choice (c) is the correct answer.** Sneakers, loafers, and moccasins are all types of shoes. Since shoes is the general category, it does not belong.

3. **Answer choice (a) is the correct answer.** Soda, coffee, and juice are all drinks. Pizza is a food, so it does not belong.

4. **Answer choice (d) is the correct answer.** Starved, malnourished, and famished all mean extremely hungry or underfed. Extreme means of high degree, so it does not belong.

5. **Answer choice (a) is the correct answer.** Cars, motorcycles, and trucks all drive on highways. Since highway is the general category, it does not belong.

6. **Answer choice (b) is the correct answer.** Optometrists, pediatricians, and oncologists are all doctors. Since doctor is the general category, it does not belong.

7. **Answer choice (b) is the correct answer.** Pretentious, arrogant, and pompous all mean showy or conceited. Modest means humble, which is the opposite, so it does not belong.

8. **Answer choice (c) is the correct answer.** A CEO, manager, and employee all work at a company. Since company is the general category, it does not belong.

9. **Answer choice (a) is the correct answer.** Flagrant, obvious, and blatant all mean very clear. Disguised means hidden, which is the opposite, so it does not belong.

10. **Answer choice (c) is the correct answer.** A cylinder, sphere, and prism are all 3-dimensional figures. A rectangle is a 2-dimensional figure, so it does not belong.

11. **Answer choice (b) is the correct answer.** Numbers, letters, and symbols are all figures. Since figure is the general category, it does not belong.

12. **Answer choice (b) is the correct answer.** Liter, gram, and kilometer are all metric units. Yard is a customary unit, so it does not belong.

13. **Answer choice (d) is the correct answer.** Jazz, classical, and rock are all types of music. Since music is the general category, it does not belong.

14. **Answer choice (b) is the correct answer.** Fuming, irate, and angry mean extremely upset. Depressed means very sad, so it does not belong.

15. **Answer choice (a) is the correct answer.** Classrooms, gymnasiums, and hallways are all parts of a school. Since school is the general category, it does not belong.

16. **Answer choice (c) is the correct answer.** Basketball, baseball, and tennis are all sports that are played with a ball. Cross country is running, which is not played with a ball, so it does not belong.

17. **Answer choice (d) is the correct answer.** Aunts, uncles, and cousins are not part of someone's immediate family. A sister is part of someone's immediate family, so it does not belong.

18. **Answer choice (d) is the correct answer.** Biking, running, and hiking are all ways of exercising. Since exercising is the general category, it does not belong.

19. **Answer choice (c) is the correct answer.** Sum, product, and quotient are all types of operations used in a calculation. Since calculation is the general category, it does not belong.

20. **Answer choice (b) is the correct answer.** Bananas, apples, and tomatoes are all fruits. Broccoli is a vegetable, so it does not belong.

Word Classifications Practice Set 4

1. **Answer choice (a) is the correct answer.** Sister, mother, and aunt all refer to women. Grandfather refers to a man, so it does not belong.

2. **Answer choice (b) is the correct answer.** A mile, an inch, and a centimeter are all a unit of distance. A liter is a unit of volume, so it does not belong.

3. **Answer choice (b) is the correct answer.** A sculpture, a painting, and a drawing are all created by an artist. Since artist is the general category, it does not belong.

4. **Answer choice (c) is the correct answer.** Spoons, forks, and knives are all utensils. A bowl is not a utensil, so it does not belong.

5. **Answer choice (a) is the correct answer.** Retire, abandon, and resign all mean to leave. Assert means to declare, so it does not belong.

6. **Answer choice (d) is the correct answer.** A pentagon, circle, and square are all 2-dimensional shapes. A cube is a 3-dimensional figure, so it does not belong.

7. **Answer choice (c) is the correct answer.** Composite, prime, and even are all types of numbers. Since number is the general category, it does not belong.

8. **Answer choice (a) is the correct answer.** Shout, yell, and bellow all mean to talk very loudly. Whisper means to talk quietly, so it does not belong.

9. **Answer choice (d) is the correct answer.** Mouth, nose, and eye are all parts of a face. Since face is the general category, it does not belong.

10. **Answer choice (a) is the correct answer.** Run, skip, and walk are all actions done on land. Swim is an action done in water, so it does not belong.

11. **Answer choice (a) is the correct answer.** Tulip, hydrangea, and rose are all types of flower. Since flower is the general category, it does not belong.

12. **Answer choice (d) is the correct answer.** Unwavering, inflexible, and resolute mean non changing, or fixed. Tentative means not certain or not fixed, which is the opposite, so it does not belong.

13. **Answer choice (c) is the correct answer.** Magazines, poems, and novels are all things that people read. Since reading is the general category, it does not belong.

14. **Answer choice (b) is the correct answer.** Freshman, junior, and sophomore are all grades in high school or college. Graduate is not a grade; it is someone who has graduated already, so it does not belong.

15. **Answer choice (c) is the correct answer.** Kind, benevolent, and charitable all mean nice and generous. Gregarious means sociable, so it does not belong.

16. **Answer choice (d) is the correct answer.** Biology, chemistry, and physics are all branches of science. Since science is the general category, it does not belong.

17. **Answer choice (a) is the correct answer.** Bashful, meek, and quiet all mean shy. Obnoxious means very unpleasant or offensive, so it does not belong.

18. **Answer choice (d) is the correct answer.** A viola, violin, and cello are all string instruments. A drum is a percussion instrument, so it does not belong.

19. **Answer choice (b) is the correct answer.** Ballet, contemporary, and tap are all types of dance. Since dance is the general category, it does not belong.

20. **Answer choice (c) is the correct answer.** Neutral, indifferent, and impartial all mean objective. Biased means subjective, which is the opposite, so it does not belong.

Analogies Practice Set 1

1. **Answer choice (c) is the correct answer.** A glacier is made of ice and a dune is made of sand.

2. **Answer choice (d) is the correct answer.** Thirsty is a less intense version of parched. Hungry is a less intense version of ravenous. Be careful with intensity analogies: they look like synonym analogies, but the two words being compared aren't direct synonyms.

3. **Answer choice (b) is the correct answer.** Naive means the same thing as unsophisticated. Stealthy means the same thing as surreptitious.

4. **Answer choice (a) is the correct answer.** An orchestra is made up of musicians. An army is made up of soldiers.

5. **Answer choice (d) is the correct answer.** Pepperoni is a topping for pizza. Sprinkles are a topping for ice cream.

6. **Answer choice (b) is the correct answer.** A thermometer measures temperature. An odometer measures mileage.

7. **Answer choice (a) is the correct answer.** Isosceles is a type of triangle. Poetry is a type of literature.

8. **Answer choice (a) is the correct answer.** A lumberjack uses an axe. A gardener uses a spade.

9. **Answer choice (d) is the correct answer.** A kilometer is a unit of distance. A pint is a unit of volume.

10. **Answer choice (c) is the correct answer.** A carpenter's job is to build. A professor's job is to teach.

11. **Answer choice (d) is the correct answer.** A fracture is a partial break, or a less intense break. A separation in marriage is a step before divorce, so it is similar to a partial divorce.

12. **Answer choice (a) is the correct answer.** Privileged means to have an advantage. Affluent means to have money.

13. **Answer choice (c) is the correct answer.** If you are successful in a competition, you receive a medal. If you are successful in your education, you receive a diploma.

14. **Answer choice (c) is the correct answer.** You are hungry if you lack food. You are unloved if you lack affection.

15. **Answer choice (b) is the correct answer.** Vain is the opposite of humble. Admiration is the opposite of disdain.

16. **Answer choice (c) is the correct answer.** A plane has a cockpit in the front for the pilot. A truck has a cab in the front for the driver.

17. **Answer choice (b) is the correct answer.** An apron is worn by a chef to keep him/her clean. A smock is worn by a painter to keep him/her clean.

18. **Answer choice (a) is the correct answer.** Poodle and Dalmation are both types of dogs. Siamese and Siberian are both types of cats.

19. **Answer choice (c) is the correct answer.** Impartial is the opposite of biased. Serendipity is the opposite of misfortune.

20. **Answer choice (a) is the correct answer.** An attic is the top of a house and a basement is the bottom of a house. A numerator is the top of a fraction and a denominator is the bottom of a fraction.

Analogies Practice Set 2

1. **Answer choice (b) is the correct answer.** An arm bends in the middle at the elbow. A leg bends in the middle at the knee.

2. **Answer choice (b) is the correct answer.** Average is worse than superior. Mediocre is worse than excellent.

3. **Answer choice (d) is the correct answer.** A chemist is a type of scientist. An oncologist is a type of doctor.

4. **Answer choice (c) is the correct answer.** Vague means the same thing as ambiguous. Slander means the same thing as defame.

5. **Answer choice (a) is the correct answer.** Disobedience leads to punishment. Dedication leads to success.

6. **Answer choice (a) is the correct answer.** A pen is used to write. A fork is used to eat.

7. **Answer choice (b) is the correct answer.** Adept is the opposite of inept. Credible is the opposite of unbelievable.

8. **Answer choice (d) is the correct answer.** A cleaver is used by a butcher. A stethoscope is used by a physician.

9. **Answer choice (a) is the correct answer.** Anarchy happens when a society lacks leadership. Amoral means someone lacks morals.

10. **Answer choice (c) is the correct answer.** Violent winds create a tornado. Violent waves create a tsunami. You can also think of it as an intensity analogy. Wind is a way less intense version of a tornado. Waves are way less intense versions of tsunamis.

11. **Answer choice (c) is the correct answer.** Lizards and snakes are both reptiles. Frogs and salamanders are both amphibians.

12. **Answer choice (a) is the correct answer.** Hindrance means the same thing as obstacle. Excess means the same thing as surplus.

13. **Answer choice (a) is the correct answer.** A store has a clerk working at the front. A bank has a teller working at the front.

14. **Answer choice (a) is the correct answer.** Catastrophic is a more intense version of unfortunate. Impossible is a more intense version of improbable.

15. **Answer choice (b) is the correct answer.** A word is made up of letters. A paragraph is made up of sentences.

16. **Answer choice (c) is the correct answer.** A president leads a country. A mayor leads a city.

17. **Answer choice (d) is the correct answer.** A calculator is used to compute. A scale is used to measure.

18. **Answer choice (d) is the correct answer.** Days make up a week. Months make up a year.

19. **Answer choice (b) is the correct answer.** Hound is a type of dog. Lion is a type of feline.

20. **Answer choice (b) is the correct answer.** Centimeter is a metric unit measuring distance and liter is a metric unit measuring volume. Inch is a customary unit measuring distance and gallon is a customary unit measuring volume.

Analogies Practice Set 3

1. **Answer choice (d) is the correct answer.** A square and cube are similar but a square is 2-dimensional and a cube is 3-dimensional. A circle and sphere are similar but a circle is 2-dimensional and a sphere is 3-dimensional.

2. **Answer choice (c) is the correct answer.** Pressure causes stress. Exercise causes fatigue.

3. **Answer choice (b) is the correct answer.** A biologist studies organisms. A botanist studies plants.

4. **Answer choice (b) is the correct answer.** June is right before July. Monday is right before Tuesday.

5. **Answer choice (a) is the correct answer.** Gregarious is the opposite of introverted. Engaged is the opposite of aloof.

6. **Answer choice (b) is the correct answer.** A country is made up of states. A city is made up of neighborhoods.

7. **Answer choice (a) is the correct answer.** A consumer purchases things. A vendor sells things.

8. **Answer choice (a) is the correct answer.** Deceitful means the same thing as misleading. Arrogant means the same thing as haughty.

9. **Answer choice (c) is the correct answer.** Content is a less intense version of happy. Annoyed is a less intense version of livid. Be careful with intensity analogies: they look like synonym analogies, but the two words being compared aren't direct synonyms.

10. **Answer choice (d) is the correct answer.** A surfboard moves on water. A kite moves in the wind.

11. **Answer choice (d) is the correct answer.** Pupil and retina are both part of the eye. Nose and mouth are both part of a face.

12. **Answer choice (b) is the correct answer.** Miami is a city in Florida. Dallas is a city in Texas.

13. **Answer choice (b) is the correct answer.** Underdogs are often underestimated by people. Heroes are often praised by people.

14. **Answer choice (c) is the correct answer.** Links make up a chain. Stars make up a constellation.

15. **Answer choice (b) is the correct answer.** Oblivious means the same thing as ignorant. Adversity means the same thing as struggle.

16. **Answer choice (b) is the correct answer.** Camouflage is used to conceal things. Soap is used to cleanse things.

17. **Answer choice (d) is the correct answer.** Thin is a less intense version of emaciated. Large is a less intense version of gargantuan. Be careful with intensity analogies: they look like synonym analogies, but the two words being compared aren't direct synonyms.

18. **Answer choice (c) is the correct answer.** Drawing is a general category including portraits. Writing is a general category including biographies.

19. **Answer choice (a) is the correct answer.** Acknowledgement is the opposite of denial. Optional is the opposite of obligatory.

20. **Answer choice (d) is the correct answer.** A cow is the mother of a calf. A doe is the mother of a fawn.

Analogies Practice Set 4

1. **Answer choice (b) is the correct answer.** A collection of music is a playlist. A collection of poems is an anthology.

2. **Answer choice (d) is the correct answer.** Accelerate is the opposite of decelerate. Quit is the opposite of persist.

3. **Answer choice (b) is the correct answer.** An interview is needed to get a job. An application is needed to get an interview.

4. **Answer choice (b) is the correct answer.** A contact helps improve your vision. A crutch helps improve your mobility.

5. **Answer choice (a) is the correct answer.** Maple and oak are both types of trees. Tulip and daisy are both types of flowers.

6. **Answer choice (d) is the correct answer.** Estimate means the same thing as approximate. Optimistic means the same thing as hopeful.

7. **Answer choice (c) is the correct answer.** Pleased is a less intense version of jubilant. Tired is a less intense version of exhausted. Be careful with intensity analogies: they look like synonym analogies, but the two words being compared aren't direct synonyms.

8. **Answer choice (d) is the correct answer.** A lobster is a type of crustacean. A kangaroo is a type of marsupial.

9. **Answer choice (a) is the correct answer.** Coffee provides energy. Medicine provides relief.

10. **Answer choice (a) is the correct answer.** A brush is used to paint. A scalpel is used to incise.

11. **Answer choice (c) is the correct answer.** A group of lions is a pride. A group of fish is a school.

12. **Answer choice (c) is the correct answer.** Increase means the same thing as lengthen. Decrease means the same thing as diminish.

13. **Answer choice (d) is the correct answer.** Persevere means to continuously attempt or is a more intense version of attempt. Obstinate means extremely opinionated or is a more intense version of opinionated. Be careful with intensity analogies: they look like synonym analogies, but the two words being compared aren't direct synonyms.

14. **Answer choice (c) is the correct answer.** A playwright writes a play. A composer writes a symphony.

15. **Answer choice (d) is the correct answer.** A slipper is a type of shoe. A frock is a type of dress.

16. **Answer choice (c) is the correct answer.** Earth orbits the sun. The moon orbits the Earth.

17. **Answer choice (a) is the correct answer.** A telephone is used for communication. A vehicle is used for transportation.

18. **Answer choice (d) is the correct answer.** An article is part of a newspaper. A chapter is part of a novel.

19. **Answer choice (a) is the correct answer.** Love means the same thing as revere. Hate means the same thing as detest.

20. **Answer choice (b) is the correct answer.** Pink is red mixed with white. Gray is black mixed with white.

Logic Practice Set 1

1. **Answer choice (a) is the correct answer.** If A is equal to B, and B is equal to C, that means A, B, and C are all equal.

2. **Answer choice (a) is the correct answer.** Since all rabbits have fur, and some are pets, that means that the rabbits that are pets have fur. Since rabbits that are pets have fur, that means some pets have fur.

3. **Answer choice (b) is the correct answer.** Deciduous trees drop their leaves and coniferous trees don't drop their leaves, so deciduous trees and coniferous trees are opposite types of trees. Since they are opposite types of trees, coniferous trees cannot be deciduous trees.

4. **Answer choice (c) is the correct answer.** All we know is that Greg is the fastest runner on the cross-country team. This means that if David is on the cross-country team, he cannot be the fastest runner. However, this does not mean that David is the slowest runner on the team.

5. **Answer choice (b) is the correct answer.** If you order the foods from most expensive to least expensive you will have sushi, burrito, pizza. Pizza is less expensive than sushi, not more expensive.

6. **Answer choice (a) is the correct answer.** If you order the grades from which grade reads the most to which grade reads the least you will get fifth, third, fourth. Fourth graders read less than fifth graders.

7. **Answer choice (b) is the correct answer.** Every member of the team received a trophy, so if Benjamin was on the team, he would have received a trophy. Since Benjamin did not receive a trophy, he cannot be on the team.

8. **Answer choice (b) is the correct answer.** If you order the people in the first statement from oldest to youngest, you get Sally, Billy, Karen. From this statement, you can tell that Karen is not older than Sally.

9. **Answer choice (c) is the correct answer.** We know that the last person to finish the race does not receive a medal. However, we do not know if any of the other runners who do not finish in last place receive a medal. Therefore, we cannot determine if Nina receives a medal if she does not finish in last place.

10. **Answer choice (b) is the correct answer.** Science is less difficult than math, and reading is less difficult than science, so reading is less difficult than math. Math is more difficult than reading.

11. **Answer choice (a) is the correct answer.** All informative things are useful, so if something is not useful, it cannot be informative. Since some websites are not informative, then those websites are also not useful.

12. **Answer choice (a) is the correct answer.** If you order the sports from most popular to least popular you will get baseball, football, basketball, soccer, tennis. This means tennis is the least popular sport on the list.

13. **Answer choice (c) is the correct answer.** The first statement only talks about red monsters, but does not say anything about blue monsters. Since we don't know anything about blue monsters, we don't know if Phyllis is small or not.

14. **Answer choice (b) is the correct answer.** If all noodles are honest, and all toodles are dishonest, then noodles and toodles can not be the same thing.

15. **Answer choice (c) is the correct answer.** If you order the colors from most pretty to least pretty, we know that blue and orange barbles come first, then red barbles, then green. We don't know the relationship between blue and orange barbles, so we can't tell if orange barbles are prettier than blue barbles.

16. **Answer choice (b) is the correct answer.** The first sentence tells us that if two angles are complementary, then the sum of their measures is 90 degrees. Since angles A and B are complementary, the sum of their measure is 90 degrees, not 180 degrees.

17. **Answer choice (a) is the correct answer.** Choose a number for Jonathan's age: say Jonathan is 20 years old. Theresa is five years older, so she is 25. Jonathan is seven years younger than George, so George is 27. George is older than Theresa.

18. **Answer choice (c) is the correct answer.** We know Lisa is smarter than Laura, but we do not know how Lisa and Robert compare because we don't know how Laura and Robert compare.

19. **Answer choice (b) is the correct answer.** If we order the foxes from fastest to slowest we get brown, red, black. This means the black fox is slower than the brown fox.

20. **Answer choice (c) is the correct answer.** While we know no Naggles are Waggles, that doesn't mean they don't have anything in common. Just because Naggles have wings, we don't know if Waggles have or don't have wings.

Logic Practice Set 2

1. **Answer choice (a) is the correct answer.** Since all homework is not fun, and reading is homework, that means that reading is not fun.

2. **Answer choice (c) is the correct answer.** If you order the fish from fastest to slowest, you get that the silver and gold fish are both faster than the black fish. However, we don't know the relationship between the silver and gold fish, just that they are both faster than black, so we cannot determine if the gold fish is faster than the silver fish.

3. **Answer choice (b) is the correct answer.** Since every girl on the soccer team has blonde hair, and Samantha is on the soccer team, she must have blonde hair. Therefore, she cannot have brown hair.

4. **Answer choice (b) is the correct answer.** If you order the girls from most talkative to least talkative you get Shriya, Macy, Avery. Based on the ordering, we know Avery talks less than Shriya, not more than Shriya.

5. **Answer choice (a) is the correct answer.** The first sentence says that if you study for your test, you will get a good grade. This means that if you do not get a good grade, then you definitely didn't study for your test.

6. **Answer choice (c) is the correct answer.** If you order the people in the first sentence from oldest to youngest, you get Sally, Billy, Karen. Based on the second sentence, we know that Sally is older than Bob, so Bob is younger than Sally. We want to compare Bob and Karen, but all we know is that they are both younger than Sally, so we cannot determine if Karen is older than Bob.

7. **Answer choice (a) is the correct answer.** If you stack the people from tallest to shortest based on the first sentence, you get Susan, Trevor, Betty. If you continue to order the people from tallest to shortest based on the second sentence, you get Ron, Justin, Susan, Trevor, Betty. Based on the order, Trevor is shorter than Ron.

8. **Answer choice (b) is the correct answer.** Since all Toodles are dishonest, if something is honest, it cannot be a Toodle. Therefore, since Boodles are honest, they are not Toodles.

9. **Answer choice (b) is the correct answer.** Chandler is more artistic than Regina, who is more artistic than Matt. If you order these three from most artistic to least artistic, you get Chandler, Regina, Matt. Based on the order, Matt is less artistic than Chandler, not more artistic.

10. **Answer choice (c) is the correct answer.** We know that if you don't do your homework, you will fail the test. The only other sure thing we know from this statement is that if you don't fail the test, then you did your homework. However, we don't know anything about what happens if you do your homework; you could fail or you could pass, so the answer is uncertain.

11. **Answer choice (a) is the correct answer.** If you order the people from funniest to least funny, you get Yasmin, Sean, Ryan. Based on the order, Yasmin is funnier than Ryan.

12. **Answer choice (b) is the correct answer.** If you order the towns from largest population to smallest population, you get Town C, Town A, Town B. Based on the order, Town C has a larger population than Town B, not a smaller population.

13. **Answer choice (a) is the correct answer.** If we order the colors in the second statement, we get orange, red, green. Based on this order, orange Barbles are prettier than green Barbles.

14. **Answer choice (c) is the correct answer.** Just because all students at Mills High School are smart, that doesn't mean that if a student is smart, he/she goes to Mills High School. There could be smart students at other high schools. All we know is that if a student goes to Mills High School, he or she is smart. Therefore, it is uncertain if Gina goes to Mills High School just because she is smart.

15. **Answer choice (a) is the correct answer.** We know that if you play video games all day, you will be happy. This means that if you are not happy, you couldn't have played video games all day. Therefore, the third statement is true.

16. **Answer choice (c) is the correct answer.** We know that if it snows, school is canceled. However, we don't know that snow is the only reason school would be canceled. Therefore, just because school was canceled yesterday, we can't say for sure that it was due to snow.

17. **Answer choice (a) is the correct answer.** We know that Remi's and Thomas's houses are both bigger than Paige's house. Therefore, we know that Paige's house is smaller than both Thomas's and Remi's, so Paige's house is the smallest of the three.

18. **Answer choice (b) is the correct answer.** Based on the first sentence, we know that all bugs are small and cute. Therefore, if Coodies are not cute, they cannot be bugs.

19. **Answer choice (c) is the correct answer.** If you draw out the buildings, building A is up and to the right of building B. Building C is up and to the right of building B. Based on the drawing, we don't know the relationship between building C and Building A, so the statement is uncertain.

20. **Answer choice (a) is the correct answer.** The first statement says all Flarts are Margles. This means that if no Margles are Blingers, then no Flarts can be Blingers either, since every single Flart has to be a Margle and none of the Margles are Blingers.

Logic Practice Set 3

1. **Answer choice (a) is the correct answer.** The first statement says that every student at Southside High School plays a sport. That means if you go to Southside High School, you have to play a sport, so if you don't play a sport, you cannot go to Southside High School. Since Lucille doesn't play a sport, Lucille doesn't go to Southside High School.

2. **Answer choice (b) is the correct answer.** We know all college students are educated, so if you are not educated, then you are not a college student. Since Linda is not educated, she did not go to college.

3. **Answer choice (c) is the correct answer.** The first statement says that all kids go to school, but that does not mean that the only people who go to school are kids. Therefore, just because Lauren goes to school, that doesn't necessarily mean that Lauren is a kid. It is uncertain.

4. **Answer choice (a) is the correct answer.** If you stack the schools in order from best to worst, you will get Stanford, Harvard, Princeton, Yale. Based on the order, Stanford is the best school out of the four.

5. **Answer choice (b) is the correct answer.** The first statement says that all children take naps, which means if you don't take a nap, you are not a child. Since Lily doesn't take a nap, Lily is not a child.

6. **Answer choice (a) is the correct answer.** All dogs make great pets, and all great pets require patience. Since all dogs are great pets, they all require patience.

7. **Answer choice (c) is the correct answer.** We know that all red monsters are small, and all small monsters are nice. However, we don't know if all nice monsters are red. Therefore, just because Manny is a nice monster, it is uncertain if he is a red monster.

8. **Answer choice (b) is the correct answer.** The first statement says that a Rangle cannot be a Mangle. Therefore, if Ben is a Mangle, he cannot also be a Rangle, because if you are a Rangle, you are not a Mangle.

9. **Answer choice (c) is the correct answer.** Based on the first two statements, we know that Kareem and Rachel both make more money than Partha. However, we do not know if Kareem makes more money than Rachel, so it is uncertain.

10. **Answer choice (a) is the correct answer.** The first statement tells us that a Voon cannot be a Boon. Therefore, if the second statement says only Boons can be Groons, then Voons cannot be Groons since Voons cannot be Boons.

11. **Answer choice (b) is the correct answer.** If you order the people from who can speak the most number of languages to who can speak the fewest number of languages, you will get Jack, Karen, Sylvie. Based on the order, Sylvi speaks fewer languages than Jack, not more than him.

12. **Answer choice (b) is the correct answer.** If all fixers are doers, and all doers are winners, then all fixers are winners because they are doers. Therefore, the statement no fixers are winners is false.

13. **Answer choice (c) is the correct answer.** Based on the first two sentences, we know that Rick is smarter than both Jeremy and Carl. However, we don't know the relationship between Jeremy and Carl, so the statement that Carl is dumber than Jeremy is uncertain.

14. **Answer choice (b) is the correct answer.** The first statement tells us that Kevin is a better singer than Brendan, so Keven cannot be the worst singer of the group.

15. **Answer choice (a) is the correct answer.** If you order the foods from most spicy to least spicy, you will get peppers, pasta, bread. Based on the order, peppers are spicier than bread.

16. **Answer choice (c) is the correct answer.** We know that all laptops are awesome, but that does not mean that they are the only type of computer that is awesome. Therefore, just because Michael's computer is awesome, we cannot determine if his computer is a laptop.

17. **Answer choice (a) is the correct answer.** If you draw the towns, Town A is above Town B, and Town C is below Town B. This means Town A is above, or north of, Town C.

18. **Answer choice (c) is the correct answer.** Based on the first two statements, we know that red and orange marbles are better than blue, green, and yellow marbles. However, we don't know the relationship between orange and red marbles, so it is uncertain if orange marbles are worse than red marbles.

19. **Answer choice (c) is the correct answer.** We know that all Stanford students are nerds. However, that doesn't mean that Stanford students are the only nerds that exist. Therefore, just because Lisa is a nerd, it does not necessarily mean that she went to Stanford, so the third statement is uncertain.

20. **Answer choice (a) is the correct answer.** All red monsters are small and nice based on the first sentence. Therefore, if Toby is not nice, he cannot be a red monster.

Logic Practice Set 4

1. **Answer choice (b) is the correct answer.** Since green monsters only sleep during the day and nice monsters only sleep at night, green monsters and nice monsters cannot be the same monsters. Therefore, green monsters are not nice.

2. **Answer choice (a) is the correct answer.** If you stack the boys from tallest to shortest, you get Mason, Rafe, Hayden. Based on the order, Mason is taller than Hayden.

3. **Answer choice (b) is the correct answer.** The first statement says that if you play golf, you are an athlete. Therefore, since Benji plays golf he must be an athlete.

4. **Answer choice (a) is the correct answer.** The first statement tells us that if you are a high school student, then you have to take math. That means that if Sean doesn't take math, he cannot be a high school student since all high school students take math.

5. **Answer choice (a) is the correct answer.** If you draw the towns on a diagram, you will get that Town C is to the right of Town D, and Town E is to the left of Town D. On the diagram, Town C is to the right, or east of, Town E.

6. **Answer choice (c) is the correct answer.** While the first statement tells us that all children take naps, it doesn't tell us that only children take naps. Therefore, just because Johnny takes a nap, we cannot determine if he is a child.

7. **Answer choice (b) is the correct answer.** The first statement tells us that if a phone is a Smartphone, then it has to have games. Therefore, if Merideth's phone does not have games, it cannot be a Smartphone.

8. **Answer choice (a) is the correct answer.** All Voons fall in the category of Boons, and all Boons fall in the category of Groons. Therefore, all Voons have to be Groons because all Voons are Boons.

9. **Answer choice (b) is the correct answer.** If you stack the pets from highest number to lowest number, you get dogs, cats, fish. Based on the order, there are not more fish than dogs.

10. **Answer choice (c) is the correct answer.** We know that all red monsters are small, but that doesn't mean that all small monsters are definitely red. Therefore, it is uncertain if Henry is a red monster just because he is a small monster.

11. **Answer choice (c) is the correct answer.** Based on the first two sentences, Karen types faster than Trevor and Michelle. However, we don't know the relationship between Trevor and Michelle, so it is uncertain if Trevor types slower than Michelle.

12. **Answer choice (b) is the correct answer.** All Naggles fall into the category of Waggle, and all Waggles have wings. Since Naggles fall into the category of Waggles, and all Waggles have wings, then Naggles must have wings.

13. **Answer choice (b) is the correct answer.** From the first statement, we know red is better than yellow. From the second statement, we know yellow is better than green. Therefore, if we order these three colors from best to worst, we get red, yellow, green. Based on the order, green marbles are not better than red marbles, they are worse.

14. **Answer choice (b) is the correct answer.** If you order the letters from greatest to least, you get X, Y, Z. Based on the order, Z is less than X, not greater than X.

15. **Answer choice (c) is the correct answer.** We know that all boys play baseball and all baseball players are funny, which means all boys are funny. However, that doesn't mean that everyone who is funny and plays baseball is a boy. Therefore, it is uncertain if Taylor is a boy just because he/she is funny and plays baseball.

16. **Answer choice (a) is the correct answer.** From the first statement we know that Cal is older than Anthony. From the second statement, we know that Matt is older than Cal. If we order the three boys from oldest to youngest, we get Matt, Cal, Anthony. Based on the order, Anthony is younger than Matt.

17. **Answer choice (c) is the correct answer.** Based on the first two statements, we know that Yoots are worse than Groots, which means they are worse than Roots (since Roots are better than Groots). However, we don't know the relationship between Yoots and Boots, so the statement Yoots are the worst is uncertain.

18. **Answer choice (c) is the correct answer.** Based on the first statements, we know that if two angles are vertical angles, then they are congruent, and if two angles are congruent, then they have the same measure. However, we do not know that if two angles have the same measure, then they are definitely vertical angles; they could be different types of angles that are congruent. Therefore, just because Angle A and angle B have the same measure, it is uncertain if they are vertical angles.

19. **Answer choice (b) is the correct answer.** If we order the bunnies from fattest to skinniest, we get green, purple, pink. Based on the order, the pink bunny is the skinniest of the three bunnies, not the fattest.

20. **Answer choice (c) is the correct answer.** Just because all Noodles are honest does not mean that Noodles are the only things that are honest. Therefore, just because Boodles are also honest, it is uncertain if Boodles are Noodles.

Quantitative Skills and Mathematics

Quantitative Skills and Mathematics Chapter

Fundamentals Practice Set 1

1. **Answer choice (b) is the correct answer.** When adding whole numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to add large numbers.

2. **Answer choice (a) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

3. **Answer choice (d) is the correct answer.** When adding whole numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to add large numbers.

4. **Answer choice (c) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

5. **Answer choice (a) is the correct answer.** When subtracting large numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to subtract large numbers.

6. **Answer choice (d) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

7. **Answer choice (c) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

8. **Answer choice (a) is the correct answer.** When subtracting large numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to subtract large numbers.

9. **Answer choice (b) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

10. **Answer choice (a) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

Fundamentals Practice Set 2

1. **Answer choice (b) is the correct answer.** When subtracting large numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to subtract large numbers.

2. **Answer choice (d) is the correct answer.** When adding whole numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to add large numbers.

3. **Answer choice (a) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

4. **Answer choice (a) is the correct answer.** When adding whole numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to add large numbers.

5. **Answer choice (b) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

6. **Answer choice (c) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

7. **Answer choice (d) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

8. **Answer choice (b) is the correct answer.** When subtracting large numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to subtract large numbers.

9. **Answer choice (d) is the correct answer.** When multiplying two numbers, stack the numbers on top of each other and line up the digits. To see a step by step solution of this problem, follow this link and type in the problem: how to multiply large numbers.

10. **Answer choice (c) is the correct answer.** When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division.

Multiples and Factors Practice Set 1

1. **Answer choice (b) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 12 is the smallest number that can be divided by both 4 and 6 evenly, so 12 is the least common multiple of 4 and 6.

2. **Answer choice (a) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 6 is the greatest common factor of 12 and 18 because it is the largest number that 12 and 18 are both divisible by.

3. **Answer choice (b) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 25 by making a factor tree. $5 \cdot 5 = 25$, and 5 is a prime number, so 5^2 is the prime factorization of 25. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

4. **Answer choice (d) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 30 is the smallest number that can be divided by 5, 10, and 15 evenly, so 30 is the least common multiple of 5, 10, and 15.

5. **Answer choice (c) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 5 is the greatest common factor of 90, 45, and 25 because it is the largest number that 90, 45, and 25 are all divisible by.

6. **Answer choice (a) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 12 by making a factor tree. $3 \cdot 2 \cdot 2 = 12$, and 3 and 2 are prime

numbers, so $3 \cdot 2^2$ is the prime factorization of 12. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

7. **Answer choice (c) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 36 is the smallest number that can be divided by 9, 6, and 4 evenly, so 36 is the least common multiple of 9, 6, and 4.

8. **Answer choice (c) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 27 by making a factor tree. $3 \cdot 3 \cdot 3 = 27$, and 3 is a prime number, so 3^3 is the prime factorization of 27. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

9. **Answer choice (a) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 14 is the greatest common factor of 14, 42, and 28 because it is the largest number that 14, 42, and 28 are all divisible by.

10. **Answer choice (b) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 20 by making a factor tree. $2 \cdot 2 \cdot 5 = 20$, and 2 and 5 are prime numbers, so $2^2 \cdot 5$ is the prime factorization of 20. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

Multiples and Factors Practice Set 2

1. **Answer choice (c) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 5 is the greatest common factor of 20 and 15 because it is the largest number that 20 and 15 are both divisible by.

2. **Answer choice (b) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 50 by making a factor tree. $5 \cdot 5 \cdot 2 = 50$, and 5 and 2 are prime numbers, so $5^2 \cdot 2$ is the prime factorization of 50. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

3. **Answer choice (b) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 24 is the smallest number that can be divided by 12 and 8 evenly, so 24 is the least common multiple of 12 and 8.

4. **Answer choice (a) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 30 is the smallest number that can be divided by 3, 6, and 5 evenly, so 30 is the least common multiple of 3, 6, and 5.

5. **Answer choice (d) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 16 by making a factor tree. 2 • 2 • 2 • 2 = 16, and 2 is a prime number, so 2^4 is the prime factorization of 16. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

6. **Answer choice (d) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 9 is the greatest common factor of 36, 18 and 45 because it is the largest number that 36, 18 and 45 are all divisible by.

7. **Answer choice (c) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 36 by making a factor tree. 2 • 2 • 3 • 3 = 36, and 2 and 3 are prime numbers, so $2^2 • 3^2$ is the prime factorization of 36. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

8. **Answer choice (a) is the correct answer.** To find the prime factorization, find the prime numbers that multiply to 35 by making a factor tree. 7 • 5 = 35, and 7 and 5 are prime numbers, so 7 • 5 is the prime factorization of 35. To see a step by step solution of this problem, follow this link, type in the number, and choose "Find prime factorization and factor tree": prime factorization calculator.

9. **Answer choice (a) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 11 is the greatest common factor of 22, 55 and 33 because it is the largest number that 22, 55 and 33 are all divisible by.

10. **Answer choice (b) is the correct answer.** Multiples of a number can be divided by the number evenly without a remainder. 40 is the smallest number that can be divided by 10, 4, and 8 evenly, so 40 is the least common multiple of 10, 4, and 8.

Divisibility and Remainders Practice Set 1

1. **Answer choice (c) is the correct answer.** 8 goes into 30 three times, and 8 times 3 equals 24. Therefore, the remainder when 30 is divided by 8 equals 30 – 24 = 6.

2. **Answer choice (b) is the correct answer.** If the sum of the digits of a number is divisible by 3, then the number is divisible by 3. Since 6 + 9 + 0 = 15, which is divisible by 3, 690 is divisible by 3.

3. **Answer choice (a) is the correct answer.** 9 goes into 83 nine times, and 9 times 9 equals 81. Therefore, the remainder when 83 is divided by 9 equals 83 – 81 = 2.

4. **Answer choice (c) is the correct answer.** If the last digit of a number is even, then it is divisible by 2. If the last digit of a number is odd, then it is not divisible by 2. Therefore, 45,801 is not divisible by 2 because the last digit is 1 which is odd.

5. **Answer choice (b) is the correct answer.** 6 goes into 153 twenty-five times, and 6 times 25 equals 150. Therefore, the remainder when 153 is divided by 6 equals 153 – 150 = 3. IMPORTANT: remember that the remainder cannot be greater than or equal to the divisor. Therefore, 3 cannot be the divisor in this problem because the remainder is 3.

6. **Answer choice (b) is the correct answer.** 56 is divisible by 4 because 4 • 14 = 56.

7. **Answer choice (d) is the correct answer.** 7 does not go into 69 evenly, so when 69 is divided by 7, there is a remainder. 7 goes into 49, 70, and 98 evenly, so there are no remainders when 49, 70, and 98 are divided by 7.

8. **Answer choice (a) is the correct answer.** Numbers that end in a 0 or 5 are divisible by 5. Numbers that end in an even number are divisible by 2. Therefore, in order for a number to be divisible by both 2 and 5, it must end in a 0. 80 is the only answer choice that ends in a 0.

9. **Answer choice (c) is the correct answer.** If the sum of the digits of a number is divisible by 9, then the number is divisible by 9. Using this, we can eliminate answer choices (b) and (d) because they are not divisible by 9. Any number divisible by 8 must be even, so we can eliminate answer choice (a). We are left with answer choice (c).

10. **Answer choice (d) is the correct answer.** 5 goes into 136 twenty-seven times, and 5 times 27 equals 135. Therefore, the remainder when 136 is divided by 5 equals 136 – 135 = 1. Since we are looking for the answer choice that does NOT have a remainder of 4, answer choice (d) is correct.

Divisibility and Remainders Practice Set 2

1. **Answer choice (b) is the correct answer.** All even numbers are divisible by 2, and all odd numbers have a remainder of 1 when divided by 2. Therefore, 341 has a remainder of 1 when divided by 2 because 341 is an odd number (341 ÷ 2 = 170 R1).

2. **Answer choice (d) is the correct answer.** Only numbers ending in a 0 or 5 are divisible by five, so 204 is not divisible by 5.

3. **Answer choice (a) is the correct answer.** 4 goes into 83 twenty times, and 4 times 20 equals 80. Therefore, the remainder when 83 is divided by 4 equals 83 – 80 = 3.

4. **Answer choice (c) is the correct answer.** If the sum of the digits of a number is divisible by 9, then the number is divisible by 9. Since 9 + 4 + 5 = 18 which is divisible by 9, 945 is divisible by 9.

5. **Answer choice (d) is the correct answer.** If a number is even, and the sum of the digits of the numbers is divisible by 3, then the number is divisible by 6. 246 is even and the sum of the digits is divisible by 3: 2 + 4 + 6 = 12 which is divisible by 3. Therefore, 246 is divisible by 6.

6. **Answer choice (d) is the correct answer.** 7 goes into 57 eight times, and 7 times 8 equals 56. Therefore, the remainder when 57 is divided by 7 equals 57 – 56 = 1.

7. **Answer choice (b) is the correct answer.** 8 goes into 44 five times, and 8 times 5 equals 40. Therefore, the remainder when 44 is divided by 8 equals 44 – 40 = 4. Since we are looking for the answer choice that does NOT have a remainder of 2, answer choice (b) is correct.

8. **Answer choice (c) is the correct answer.** Only numbers that end in 0 are divisible by 10. Since all of the answer choices end in 0, they are all divisible by 10. If the sum of the digits of a number is divisible by 3, then the number is divisible by 3. Since 4 + 3 + 0 = 7 which is NOT divisible by 3, 430 is NOT divisible by 3.

9. **Answer choice (a) is the correct answer.** Since 42 is divisible by 6 and 7, 4200 is also divisible by 6 and 7.

10. **Answer choice (c) is the correct answer.** 4 goes into 61 fifteen times, and 4 times 15 equals 60. Therefore, the remainder when 61 is divided by 4 equals 61 – 60 = 1.

Place Value Practice Set 1

1. **Answer choice (c) is the correct answer.** The 4 is in the thousands place, so it has a value of 4,000.

2. **Answer choice (d) is the correct answer.** The thousandths place is the third digit to the right of the decimal point.

3. **Answer choice (b) is the correct answer.** The hundreds place is the third digit to the left of the decimal point.

4. **Answer choice (a) is the correct answer.** The 2 is in the hundredths place, so it represents two hundredths or $\frac{2}{100}$.

5. **Answer choice (a) is the correct answer.** The 7 is in the hundred thousands place, so it represents 700,000.

6. **Answer choice (c) is the correct answer.** The tenths place is the first digit to the right of the decimal point.

7. **Answer choice (d) is the correct answer.** The 1 is in the tens place, so it represents 10.

8. **Answer choice (d) is the correct answer.** The 1 is in the ten thousandths place, so it represents one ten thousandth or $\frac{1}{10{,}000}$.

9. **Answer choice (b) is the correct answer.** The ones place is the first digit to the left of the decimal point. In a number without a decimal point, it is the last digit.

10. **Answer choice (c) is the correct answer.** The hundredths place is the second digit to the right of the decimal point.

Place Value Practice Set 2

1. **Answer choice (a) is the correct answer.** The thousands place is the fourth digit to the left of the decimal point. If there is no decimal point, the thousands place is the fourth to last digit.

2. **Answer choice (a) is the correct answer.** The 3 is in the thousandths place, so it represents three thousandths or $\frac{3}{1000}$.

3. **Answer choice (c) is the correct answer.** The tens place is the second digit to the left of the decimal point. If there is no decimal point, the tens place is the second to last digit.

4. **Answer choice (a) is the correct answer.** The 1 is in the thousands place, so it represents 1,000.

5. **Answer choice (c) is the correct answer.** The ten-thousandths place is the fourth digit to the right of the decimal point.

6. **Answer choice (d) is the correct answer.** The ten thousands place is the fifth digit to the left of the decimal point. If there is no decimal point, the ten thousands place is the fifth to last digit.

7. **Answer choice (c) is the correct answer.** The 9 is in the tenths place, so it represents nine tenths or $\frac{9}{10}$.

8. **Answer choice (b) is the correct answer.** The hundredths place is the second digit to the right of the decimal point.

9. **Answer choice (b) is the correct answer.** The 6 is in the ones place, so it just represents 6.

10. **Answer choice (b) is the correct answer.** The 5 is in the thousandths place, so it represents five thousandths or $\frac{5}{1000}$.

Order of Operations Practice Set 1

1. **Answer choice (a) is the correct answer.** Use PEMDAS. Perform the division first and then the subtraction: $55 – 40 \div 5 = 55 – 8 = 47$.

2. **Answer choice (d) is the correct answer.** Use PEMDAS. Perform the division first and then the multiplication: $64 \div 4 \times 8 = 16 \times 8 = 128$.

3. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the multiplication first and then the addition: $80 + 20 \times 5 = 80 + 100 = 180$.

4. **Answer choice (a) is the correct answer.** Use PEMDAS. Perform the operations from left to right: 18 + 10 – 12 + 5 = 28 – 12 + 5 = 16 + 5 = 21.

5. **Answer choice (c) is the correct answer.** Use PEMDAS. Perform the division first, and then perform the subtractions and addition from left to right: 36 – 18 ÷ 6 – 5 + 3 = 36 – 3 – 5 + 3 = 33 – 5 + 3 = 28 + 3 = 31.

6. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the subtraction in the parentheses first, then the multiplication, and then the addition: 16 + 4(45 – 15) = 16 + 4(30) = 16 + 120 = 136.

7. **Answer choice (d) is the correct answer.** Use PEMDAS. Perform the two divisions first, and then perform the addition: 16 ÷ 4 + 36 ÷ 2 = 4 + 18 = 22.

8. **Answer choice (c) is the correct answer.** Use PEMDAS. Perform the subtraction in the parentheses first: 6 + 3(89 – 87) + 7 × 3 = 6 + 3(2) + 7 × 3. Now perform the two multiplications and then the additions: 6 + 3(2) + 7 × 3 = 6 + 6 + 21 = 33.

9. **Answer choice (a) is the correct answer.** Use PEMDAS. Perform the subtraction in the parentheses first, then the multiplication, and then the outside subtraction: 30 – 3(14 – 7) = 30 – 3(7) = 30 – 21 = 9.

10. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the operations in the parenthesis first, completing the division before the addition: 4(6 + 3 ÷ 3) + 21 ÷ 7 = 4(6 + 1) + 21 ÷ 7 = 4(7) + 21 ÷ 7. Now complete the multiplication, then division, then the addition: 4(7) + 21 ÷ 7 = 28 + 21 ÷ 7 = 28 + 3 = 31.

Order of Operations Practice Set 2

1. **Answer choice (c) is the correct answer.** Use PEMDAS. Perform the multiplication first and then the addition: 32 + 8 × 3 = 32 + 24 = 56.

2. **Answer choice (c) is the correct answer.** Use PEMDAS. Perform the division first, and then complete the subtraction and addition moving left to right: 64 – 16 ÷ 8 + 4 = 64 – 2 + 4 = 62 + 4 = 66.

3. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the division first and then the addition: 75 + 25 ÷ 5 = 75 + 5 = 80.

4. **Answer choice (c) is the correct answer.** Use PEMDAS. Perform the addition in the parentheses, then the multiplication, and then the outside addition: $7 + 5(6 + 4) = 7 + 5(10) = 7 + 50 = 57$.

5. **Answer choice (d) is the correct answer.** Use PEMDAS. Perform the division first, and then complete the additions and subtraction moving left to right: $39 + 26 \div 13 – 5 + 4 = 39 + 2 – 5 + 4 = 41 – 5 + 4 = 36 + 4 = 40$.

6. **Answer choice (a) is the correct answer.** Use PEMDAS. Perform the operations from left to right: $54 – 14 + 10 – 7 – 2 = 40 + 10 – 7 – 2 = 50 – 7 – 2 = 43 – 2 = 41$.

7. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the subtraction in the parenthesis first, then the multiplication, and then the outside subtraction: $25 – 8(72 – 69) = 25 – 8(3) = 25 – 24 = 1$.

8. **Answer choice (a) is the correct answer.** Use PEMDAS. Perform the multiplication first, then the division, and then the subtraction: $12 \times 6 – 24 \div 8 = 72 – 24 \div 8 = 72 – 3 = 69$.

9. **Answer choice (d) is the correct answer.** Use PEMDAS. Perform the subtraction in the parentheses first: $70 – 20(13 – 10) + 30 \div 10 = 70 – 20(3) + 30 \div 10$. Now perform the multiplication, then division, then the subtraction and addition moving left to right: $70 – 20(3) + 30 \div 10 = 70 – 60 + 30 \div 10 = 70 – 60 + 3 = 10 + 3 = 13$.

10. **Answer choice (b) is the correct answer.** Use PEMDAS. Perform the division in the parenthesis first: $9 + 18 \div 9 + 2(27 \div 3) = 9 + 18 \div 9 + 2(9)$. Now perform the division, then multiplication, then the additions: $9 + 18 \div 9 + 2(9) = 9 + 2 + 2(9) = 9 + 2 + 18 = 11 + 18 = 29$.

Negative Number Addition and Subtraction Practice Set 1

1. **Answer choice (c) is the correct answer.** Adding a negative is the same as subtracting, so $–81 + 67$ is the same as $67 – 81$. Subtract $81 – 67$ and make the result negative: $81 – 67 = 14$, so $67 – 81 = –14$.

2. **Answer choice (a) is the correct answer.** Subtract $59 – 42$ and make the results negative: $59 – 42 = 17$, so $42 – 59 = –17$.

3. **Answer choice (c) is the correct answer.** Subtracting a negative number is the same as adding, so $15 – (–18) = 15 + 18 = 33$.

4. **Answer choice (b) is the correct answer.** Adding a negative is the same as subtracting, so 54 + (–150) is the same as 54 – 150. Subtract 150 – 54 and make the result negative: 150 – 54 = 96, so 54 – 150 = –96.

5. **Answer choice (d) is the correct answer.** Subtracting a negative number is the same as adding, so –37 – (–23) = –37 + 23. Now subtract 37 – 23 and make the result negative: 37 – 23 = 14, so 23 – 37 = –14.

6. **Answer choice (a) is the correct answer.** To subtract a number from a negative number, add the two numbers without the negative sign and make the result negative: 16 + 63 = 79, so –16 – 63 = –79.

7. **Answer choice (b) is the correct answer.** Subtracting a negative number is the same as adding, so –51 + 17 – (–34) = –51 + 17 + 34. Combine + 17 and + 34 to get –51 + 51 which equals 0.

8. **Answer choice (d) is the correct answer.** Adding a negative is the same as subtracting, so 13 + (–50) – 42 = 13 – 50 – 42. Find 13 – 50 by finding 50 – 13 and making the result negative: 50 – 13 = 37, so 13 – 50 = – 37. Therefore, 3 – 50 – 42 = –37 – 42. To subtract a number from a negative number, add the two numbers without the negative sign and make the result negative: 37 + 42 = 79, so –37 – 42 = –79.

9. **Answer choice (c) is the correct answer.** Subtracting a negative number is the same as adding, and adding a negative is the same as subtracting, so –16 – (–77) + (–25) = –16 + 77 – 25. Find –16 + 77 by doing 77 – 16 to get 61. Therefore, –16 + 77 – 25 = 61 – 25 = 36.

10. **Answer choice (a) is the correct answer.** Adding a negative is the same as subtracting, so 48 – 64 + (–25) + 18 = 48 – 64 – 25 + 18. We can combine the + 48 and +18 by adding, and combine the –64 and –25 by adding 64 and 25 and making the result negative. Therefore, 48 – 64 – 25 + 18 = 66 – 89. To find 66 – 89, subtract 89 – 66 and make the result negative: 89 – 66 = 23, so 66 – 89 = –23.

Negative Number Addition and Subtraction Practice Set 2

1. **Answer choice (b) is the correct answer.** Subtracting a negative is the same as adding, so 43 – (–11) = 43 + 11 = 54.

2. **Answer choice (d) is the correct answer.** Subtract 97 – 39 and make the results negative: 97 – 39 = 58, so 39 – 97 = –58.

3. **Answer choice (c) is the correct answer.** Subtracting a negative is the same as adding, so –75 – (–87) = –75 + 87. This can be rewritten as 87 – 75 which equals 12.

4. **Answer choice (d) is the correct answer.** Subtract 103 – 65 and make the results negative: 103 – 65 = 38, so 65 – 103 = –38.

5. **Answer choice (a) is the correct answer.** To subtract a positive number from a negative number, add the two numbers without the negative sign and make the result negative: 34 + 27 = 61, so –34 – 27 = –61.

6. **Answer choice (d) is the correct answer.** Adding a negative is the same as subtracting, so 73 + (–112) = 73 – 112. Subtract 112 – 73 and make the result negative: 112 – 73 = 39, so 73 – 112 = –39.

7. **Answer choice (a) is the correct answer.** Adding a negative number is the same as subtracting, so –61 + (–45) – 13 = –61 – 45 – 13. To subtract numbers from a negative number, add the numbers without the negative sign and make the result negative: 61 + 45 + 13 = 119, so –61 – 45 – 13 = –119.

8. **Answer choice (b) is the correct answer.** Subtracting a negative is the same as adding, so –6 + 18 – (–39) = –6 + 18 + 39. Add 18 and 39 to get –6 + 57 which is the same as 57 – 6 which equals 51.

9. **Answer choice (d) is the correct answer.** Subtracting a negative is the same as adding, and adding a negative is the same as subtracting, so 56 + (–100) – (–7) = 56 – 100 + 7. We can rearrange this as 56 + 7 – 100 and add 56 and 7 to get 63 – 100. Subtract 100 – 63 and make the result negative: 100 – 63 = 37, so 63 – 100 = –37.

10. **Answer choice (c) is the correct answer.** Subtracting a negative is the same as adding, and adding a negative is the same as subtracting, so –27 – 9 – (–8) + (–26) = –27 – 9 + 8 – 26. We can rearrange this to be –27 – 9 – 26 + 8. To subtract numbers from a negative number, add the numbers without the negative sign and make the result negative. Therefore, –27 – 9 – 26 = –62 because 27 + 9 + 26 = –62. Now we have –62 + 8 which is the same as 8 – 62. 62 – 8 = 54, so 8 – 62 = –54.

Negative Number Multiplication and Division Practice Set 1

1. **Answer choice (b) is the correct answer.** Multiplying a negative number by a positive number results in a negative number, so –40 × 60 = –2400.

2. **Answer choice (a) is the correct answer.** Dividing a negative number by a negative number results in a positive number, so (–3600) ÷ (–60) = 60.

3. **Answer choice (d) is the correct answer.** Dividing a negative number by a positive number results in a negative number, so –81 ÷ 9 = –9.

4. **Answer choice (b) is the correct answer.** Multiplying a negative number by a negative number results in a positive number, so (–12) × (–13) = 156.

5. **Answer choice (c) is the correct answer.** Multiplying a positive number by a negative number results in a negative number, so 10 × (–27) = –270.

6. **Answer choice (d) is the correct answer.** Dividing a positive number by a negative number results in a negative number, so 720 ÷ (–12) = –60.

7. **Answer choice (a) is the correct answer.** Multiplying a negative number by a positive number results in a negative number, so –5 × 30 = –150. Now we have –150 ÷ (–10). Dividing a negative number by a negative number results in a positive number, so –150 ÷ (–10) = 15.

8. **Answer choice (c) is the correct answer.** Dividing a positive number by a negative number results in a negative number, so 27 ÷ (–9) = –3. Now we have –3 × 3. Multiplying a negative number by a positive number results in a negative number, so –3 × 3 = –9.

9. **Answer choice (b) is the correct answer.** Multiplying a positive number by a negative number results in a negative number, so 70 × (–40) = –2800. Now we have –2800 ÷ (–10) ÷ 14. Dividing a negative number by a negative number results in a positive number, so –2800 ÷ (–10) = 280. Now we have 280 ÷ 14 which equals 20.

10. **Answer choice (d) is the correct answer.** Dividing a negative number by a negative number results in a positive number, so (–64) ÷ (–8) = 8. Now we have 8 × (–2) × (–4). Multiplying a positive number by a negative number results in a negative number, so 8 × (–2) = –16. Now we have (–16) × (–4). Multiplying a negative number by a negative number results in a positive number, so (–16) × (–4) = 64.

Negative Number Multiplication and Division Practice Set 2

1. **Answer choice (c) is the correct answer.** Dividing a negative number by a positive number results in a negative number, so –132 ÷ 12 = –11.

2. **Answer choice (c) is the correct answer.** Dividing a positive number by a negative number results in a negative number, so $5600 \div (-700) = -8$.

3. **Answer choice (b) is the correct answer.** Multiplying a negative number by a negative number results in a positive number, so $(-20) \times (-9) = 180$.

4. **Answer choice (d) is the correct answer.** Dividing a negative number by a negative number results in a positive number, so $(-6500) \div (-5) = 1300$.

5. **Answer choice (a) is the correct answer.** Multiplying a negative number by a positive number results in a negative number, so $-30 \times 120 = -3600$.

6. **Answer choice (d) is the correct answer.** Multiplying a positive number by a negative number results in a negative number, so $2 \times (-52) = -104$.

7. **Answer choice (a) is the correct answer.** Dividing a positive number by a negative number results in a negative number, so $150 \div (-25) = -6$. Now we have $-6 \times (-3)$. Multiplying a negative number by a negative number results in a positive number, so $-6 \times (-3) = 18$.

8. **Answer choice (c) is the correct answer.** Multiplying a negative number by a negative number results in a positive number, so $-6 \times (-50) = 300$. Now we have $300 \div (-20)$. Dividing a positive number by a negative number results in a negative number, so $300 \div (-20) = -15$.

9. **Answer choice (b) is the correct answer.** Multiplying a positive number by a negative number results in a negative number, so $75 \times (-2) = -150$. Now we have $-150 \div 50 \times 3$. Dividing a negative number by a positive number results in a negative number, so $-150 \div 50 = -3$. Now we have -3×3. Multiplying a negative number by a positive number results in a negative number, so $-3 \times 3 = -9$.

10. **Answer choice (a) is the correct answer.** Dividing a negative number by a positive number results in a negative number, so $(-90) \div 15 = -6$. Now we have $-6 \times (-2) \div (-4)$. Multiplying a negative number by a negative number results in a positive number, so $-6 \times (-2) = 12$. Now we have $12 \div (-4)$. Dividing a positive number by a negative number results in a negative number, so $12 \div (-4) = -3$.

Fractions Practice Set 1

1. **Answer choice (d) is the correct answer.** The LCM of 3 and 6 is 6, so change the denominators of each fraction to 6 and add the numerators: $\frac{4}{6}+\frac{5}{6}=\frac{9}{6}=\frac{3}{2}$.

2. **Answer choice (a) is the correct answer.** To change an improper fraction into a mixed number, divide the numerator by the denominator. The whole number part of your answer becomes the whole number of the fraction, the remainder of your answer becomes the numerator, and the denominator of the fraction stays the same: 29 ÷ 7 = 4 R1, so $\frac{29}{7}=4\frac{1}{7}$.

3. **Answer choice (b) is the correct answer.** Each numerator is one below each denominator. Therefore, the fraction with the smallest denominator is the smallest fraction: $\frac{2}{3}$ is farther away from one whole than $\frac{8}{9}$, $\frac{5}{6}$, and $\frac{7}{8}$.

4. **Answer choice (a) is the correct answer.** The LCM of 9 and 7 is 63, so change the denominators of each fraction to 63 and subtract the numerators: $\frac{49}{63}-\frac{27}{63}=\frac{22}{63}$.

5. **Answer choice (c) is the correct answer.** The LCM of 2, 4, and 8 is 8, so change the denominators of each fraction to 8. Then add the whole numbers together and add the numerators of each fraction part: $1\frac{4}{8}+2\frac{6}{8}+\frac{5}{8}=3\frac{15}{8}=4\frac{7}{8}$.

6. **Answer choice (b) is the correct answer.** Cross reduce 42 and 63 by dividing both by 21, and then multiply across: $\frac{42}{5}\times\frac{8}{63}=\frac{2}{5}\times\frac{8}{3}=\frac{16}{15}=1\frac{1}{15}$.

7. **Answer choice (a) is the correct answer.** Change each fraction into a mixed number, and then multiply the first fraction by the reciprocal of the second fraction, using cross reduction if you can: $\frac{7}{4}\div\frac{13}{12}=\frac{7}{4}\times\frac{12}{13}=\frac{7}{1}\times\frac{3}{13}=\frac{21}{13}$.

8. **Answer choice (a) is the correct answer.** To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the result to the numerator. This becomes the numerator of the improper fraction and the denominator stays the same. 3 • 5 = 15 + 4 = 19, so $3\frac{4}{5}=\frac{19}{5}$.

9. **Answer choice (c) is the correct answer.** The LCM of 3, 12, and 6 is 12, so change the denominators of each fraction to 12: $3\frac{4}{12} - 1\frac{7}{12} - \frac{10}{12}$. Since 4 is less than 7, we need to borrow from the whole number of the first fraction before we subtract the first two fractions: $3\frac{4}{12} - 1\frac{7}{12} - \frac{10}{12} = 2\frac{16}{12} - 1\frac{7}{12} - \frac{10}{12} = 1\frac{9}{12} - \frac{10}{12}$. We need to borrow again to finish the subtraction: $1\frac{9}{12} - \frac{10}{12} = \frac{21}{12} - \frac{10}{12} = \frac{11}{12}$.

10. **Answer choice (b) is the correct answer.** Change each fraction to an improper fraction and multiply across, using cross reduction if you can: $\frac{7}{5} \times \frac{20}{7} = \frac{1}{1} \times \frac{4}{1} = 4$.

11. **Answer choice (c) is the correct answer.** Fraction bar means divide, so the given expression is equivalent to $\frac{8}{3} \div \frac{5}{12}$. Divide by multiplying the first fraction by the reciprocal of the second, using cross reduction if you can: $\frac{8}{3} \times \frac{12}{5} = \frac{8}{1} \times \frac{4}{5} = \frac{32}{5} = 6\frac{2}{5}$.

12. **Answer choice (d) is the correct answer.** Cross reduce the 18 and 9 by dividing each part by 9. Cross reduce the 5 and 25 by dividing each part by 5. Then multiply across: $\frac{4}{9} \times \frac{5}{7} \times \frac{18}{25} = \frac{4}{1} \times \frac{1}{7} \times \frac{2}{5} = \frac{8}{35}$.

13. **Answer choice (b) is the correct answer.** Use PEMDAS, so perform the multiplication first, using cross reduction if you can: $\frac{3}{4} \times \frac{8}{9} = \frac{1}{1} \times \frac{2}{3} = \frac{2}{3}$. Now add $\frac{1}{3}$ and $\frac{2}{3}$: $\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$.

14. **Answer choice (b) is the correct answer.** Cross out answer choice (a) because $\frac{1}{2}$ is greater than $\frac{3}{7}$. Cross out answer choice (c) because $\frac{2}{8} = \frac{1}{4}$ which is less than $\frac{1}{3}$. Cross out answer choice (d) because $\frac{3}{9} = \frac{1}{3}$ which is not in between $\frac{1}{3}$ and $\frac{3}{7}$. We are left with answer choice (b).

15. **Answer choice (c) is the correct answer.** Use PEMDAS, so perform the division first:

$\frac{1}{2} \div 4 = \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$. Now subtract $1\frac{1}{2}$ minus $\frac{1}{8}$ by making a common denominator of 8: $1\frac{1}{2} - \frac{1}{8} = 1\frac{4}{8} - \frac{1}{8} = 1\frac{3}{8}$.

16. **Answer choice (c) is the correct answer.** The LCM of 2, 5, and 10 is 10, so change the denominators to 10, and then add and subtract the numerators, moving from left to right: $\frac{75}{10} + \frac{18}{10} - \frac{13}{10} = \frac{80}{10} = 8$.

17. **Answer choice (c) is the correct answer.** First, simplify the fraction by dividing the top and bottom by 2 to get $\frac{29}{4}$. To change an improper fraction into a mixed number, divide the numerator by the denominator. The whole number part of your answer becomes the whole number of the fraction, the remainder of your answer becomes the numerator, and the denominator of the fraction stays the same: 29 ÷ 4 = 7 R1, so $\frac{29}{4} = 7\frac{1}{4}$.

18. **Answer choice (d) is the correct answer.** Compare each fraction to one-half to eliminate some answer choices. Answer choices (a) and (c) are both less than one-half, and answer choices (b) and (d) are both greater than one-half, so we can eliminate choices (a) and (c). Compare answer choices (b) and (d) by changing the denominators to 55: $\frac{6}{11} = \frac{30}{55}$ and $\frac{3}{5} = \frac{33}{55}$, so $\frac{3}{5} > \frac{6}{11}$.

19. **Answer choice (d) is the correct answer.** To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the result to the numerator. This becomes the numerator of the improper fraction and the denominator stays the same. 5 • 9 = 45 + 2 = 47, so $5\frac{2}{9} = \frac{47}{9}$.

20. **Answer choice (c) is the correct answer.** Change the denominators of the given fractions to 10 to get $\frac{4}{10}$ and $\frac{6}{10}$. Now we can eliminate answer choice (b). We can also eliminate choice (d) because $\frac{1}{3}$ is less than $\frac{4}{10}$. We know that $\frac{4}{9}$ is greater than $\frac{4}{10}$. We also know that it is less than $\frac{6}{10}$ because $\frac{4}{9}$ is less than half and $\frac{6}{10}$ is greater than half. Therefore, $\frac{4}{9}$ is in between $\frac{4}{10}$ and $\frac{6}{10}$.

Fractions Practice Set 2

1. **Answer choice (a) is the correct answer.** To change an improper fraction into a mixed number, divide the numerator by the denominator. The whole number part of your answer becomes the whole number of the fraction, the remainder of your answer becomes the numerator, and the denominator of the fraction stays the same: 41 ÷ 6 = 6 R5, so $\frac{41}{6} = 6\frac{5}{6}$.

2. **Answer choice (d) is the correct answer.** Each numerator is four less than each denominator. Therefore, the fraction with the largest denominator is the largest fraction: $\frac{7}{11}$ is closer to one whole than $\frac{3}{7}$, $\frac{5}{9}$, and $\frac{6}{10}$.

3. **Answer choice (c) is the correct answer.** The LCM of 8 and 4 is 8, so change the denominators of each fraction to 8 and add the numerators: $\frac{5}{8} + \frac{6}{8} = \frac{11}{8} = 1\frac{3}{8}$.

4. **Answer choice (a) is the correct answer.** The LCM of 5 and 6 is 30, so change the denominators of each fraction to 30 and subtract the numerators: $\frac{24}{30} - \frac{5}{30} = \frac{19}{30}$.

5. **Answer choice (b) is the correct answer.** The LCM of 3, 6, and 9 is 18, so change the denominators of each fraction to 18. Then add the whole numbers together and add the numerators of each fraction part: $3\frac{6}{18} + \frac{15}{18} + 1\frac{2}{18} = 4\frac{23}{18} = 5\frac{5}{18}$. Change $5\frac{5}{18}$ into an improper fraction to get $\frac{95}{18}$.

6. **Answer choice (d) is the correct answer.** Compare each fraction to one-half to eliminate some answer choices. $\frac{5}{9}$ and $\frac{6}{11}$ are both greater than $\frac{1}{2}$, $\frac{5}{10}$ is equal to $\frac{1}{2}$, and $\frac{6}{13}$ is less than $\frac{1}{2}$. Therefore, $\frac{6}{13}$ is the smallest fraction.

7. **Answer choice (a) is the correct answer.** Change each fraction into a mixed number, and then multiply the first fraction by the reciprocal of the second fraction, using cross reduction if you can: $\frac{11}{5} \div \frac{13}{10} = \frac{11}{5} \times \frac{10}{13} = \frac{11}{1} \times \frac{2}{13} = \frac{22}{13}$. Change $\frac{22}{13}$ into a mixed number to get $1\frac{9}{13}$.

8. **Answer choice (c) is the correct answer.** To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the result to the numerator. This becomes the numerator of the improper fraction and the denominator stays the same. 5 • 7 = 35 + 2 = 37, so $5\frac{2}{7}=\frac{37}{7}$.

9. **Answer choice (c) is the correct answer.** The LCM of 2, 3, and 6 is 6, so change the denominators of each fraction to 6: $4\frac{3}{6}-1\frac{4}{6}-\frac{4}{6}$. Since 3 is less than 4, we need to borrow from the whole number of the first fraction before we subtract the first two fractions: $4\frac{3}{6}-1\frac{4}{6}-\frac{4}{6}=3\frac{9}{6}-1\frac{4}{6}-\frac{4}{6}=2\frac{5}{6}-\frac{4}{6}$. Subtract the remaining two fractions to get $2\frac{1}{6}$.

10. **Answer choice (a) is the correct answer.** $\frac{4}{9}$ is less than $\frac{1}{2}$. Therefore, we can cross out answer choice (c). We can also cross out choice (d) because $\frac{3}{5}$ is greater than $\frac{1}{2}$. $\frac{2}{7}$ is greater than $\frac{1}{4}$ because $\frac{1}{4}=\frac{2}{8}$, so we can cross out answer choice (b). We are left with choice (a) as the correct answer.

11. **Answer choice (d) is the correct answer.** Change each fraction to an improper fraction and multiply across, using cross reduction if you can: $\frac{21}{8}\times\frac{4}{3}=\frac{7}{2}\times\frac{1}{1}=\frac{7}{2}$.

12. **Answer choice (b) is the correct answer.** Fraction bar means divide, so the given expression is equivalent to $\frac{6}{7}\div\frac{7}{6}$. Divide by multiplying the first fraction by the reciprocal of the second, using cross reduction if you can: $\frac{6}{7}\times\frac{6}{7}=\frac{36}{49}$.

13. **Answer choice (d) is the correct answer.** Cross reduce the 55 and 77 by dividing each part by 11. Cross reduce the 18 and 12 by dividing each part by 6. Then multiply across: $\frac{55}{12}\times\frac{18}{77}=\frac{5}{2}\times\frac{3}{7}=\frac{15}{14}=1\frac{1}{14}$.

14. **Answer choice (a) is the correct answer.** The LCM of 2, 5, and 10 is 10, so change the denominators of each fraction to 10, and then add and subtract the numerators, moving from left to right:

$\frac{45}{10} - \frac{22}{10} + \frac{17}{10} = \frac{40}{10} = 4$.

15. Answer choice (d) is the correct answer. Cross reduce the 8 and 24 by dividing each part by 8. Cross reduce the two 11s by dividing each by 11: $\frac{8}{11} \times \frac{3}{5} \times \frac{11}{24} = \frac{1}{1} \times \frac{3}{5} \times \frac{1}{3}$. Now cross reduce the two 3s by dividing by 3 and multiply across: $\frac{1}{1} \times \frac{3}{5} \times \frac{1}{3} = \frac{1}{1} \times \frac{1}{5} \times \frac{1}{1} = \frac{1}{5}$.

16. Answer choice (b) is the correct answer. Use PEMDAS, so perform the multiplication first, using cross reduction if possible: $\frac{4}{7} \times \frac{5}{8} = \frac{1}{7} \times \frac{5}{2} = \frac{5}{14}$. Now we have $\frac{3}{7} + \frac{5}{14}$. The LCM of 7 and 14 is 14, so change the denominators of each fraction to 14 and add the numerators: $\frac{6}{14} + \frac{5}{14} = \frac{11}{14}$.

17. Answer choice (c) is the correct answer. Simplify the fraction first by dividing the numerator and denominator by 2 to get $\frac{21}{2}$ To change an improper fraction into a mixed number, divide the numerator by the denominator. The whole number part of your answer becomes the whole number of the fraction, the remainder of your answer becomes the numerator, and the denominator of the fraction stays the same: 21 ÷ 2 = 10 R1, so $\frac{21}{2} = 10\frac{1}{2}$.

18. Answer choice (c) is the correct answer. Use PEMDAS, so perform the division first: $\frac{2}{3} \div 3 = \frac{2}{3} \times \frac{1}{3} = \frac{2}{9}$. Now subtract $3\frac{2}{3}$ minus $\frac{1}{9}$ by making a common denominator of 9: $3\frac{2}{3} - \frac{2}{9} = 3\frac{6}{9} - \frac{2}{9} = 3\frac{4}{9}$.

19. Answer choice (c) is the correct answer. To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the result to the numerator. This becomes the numerator of the improper fraction and the denominator stays the same. 6 • 5 = 30 + 4 = 34, so $6\frac{4}{5} = \frac{34}{5}$.

20. **Answer choice (b) is the correct answer.** Since $\frac{4}{8}$ is equal to $\frac{1}{2}$, we can cross out answer choice (a). We can cross our answer choices (c) and (d) because they are both greater than $\frac{1}{2}$. We are left with choice (b) as the correct answer.

Decimals Practice Set 1

1. **Answer choice (a) is the correct answer.** When adding decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

2. **Answer choice (d) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 8 times 7 equals 56. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 1. This means we want 1 digit after the decimal point in our number, so our answer is 5.6. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

3. **Answer choice (d) is the correct answer.** When subtracting decimals, line up the decimal point and subtract down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

4. **Answer choice (a) is the correct answer.** The 0 is in the tenths place, so we need to look at the 5 to determine if we round the 0 up or down. Since 5 is greater than or equal to 5, we round the 0 up to 1, so we get 3.1.

5. **Answer choice (b) is the correct answer.** When subtracting decimals, line up the decimal point and subtract down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

6. **Answer choice (c) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. Since there is no decimal point in 9, we divide 10.8 by 9 using long division which equals 1.2. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

7. **Answer choice (a) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 3 times 6 equals 18. To determine where the decimal

point goes, count up the total number of digits after the decimal point in the original numbers which is 2. This means we want 2 digits after the decimal point in our number, so our answer is 0.18. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

8. **Answer choice (b) is the correct answer.** When adding decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

9. **Answer choice (d) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 0.04 to the right twice to get 4. Now, do the same thing to the dividend (1st number). We move the decimal point in 0.59 to the right twice to get 59. Now divide 59 by 4 using long division which equals 14.75. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

10. **Answer choice (c) is the correct answer.** When adding three decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

11. **Answer choice (d) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 1612 times 123 equals 198,276. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 2. This means we want 2 digits after the decimal point in our number, so our answer is 1982.76. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

12. **Answer choice (a) is the correct answer.** When subtracting three numbers, you need to subtract the second number from the first, and then subtract the third number from the result. 90 – 13.62 = 76.38 and 76.38 – 4.91 = 71.47. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

13. **Answer choice (b) is the correct answer.** Use PEMDAS, perform the subtraction first by lining up the decimal point and subtracting down: 81.245 – 15 = 66.245. Perform the addition next by lining up the decimal point and adding down: 66.245 + 3.1 = 69.345. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

14. **Answer choice (b) is the correct answer.** The 9 is in the hundredths place, so we look at the 6 to determine if we round the 9 up or down. Since 6 is greater than or equal to 5, we round the 9 up. When we round up a 9, the 9 becomes a 0 and we round up the number to the left of the 9. Therefore, we get 328.80.

15. **Answer choice (b) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 98 times 538 equals 52,724. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 3. This means we want 3 digits after the decimal point in our number, so our answer is 52.724. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

16. **Answer choice (a) is the correct answer.** The 6 to the right of the decimal point is in the thousandths place, so we look at the 4 to determine if we round the 6 up or down. Since 4 is less than 5, we round the 6 down and keep it as a 6. Therefore, we get 56.836.

17. **Answer choice (c) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 0.9 to the right once to get 9. Now, do the same thing to the dividend (1st number). We move the decimal point in 73.8 to the right once to get 738. Now divide 738 by 9 using long division which equals 82. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

18. **Answer choice (c) is the correct answer.** Use PEMDAS, perform the addition first by lining up the decimal point and adding down: 6.7 + 13.42 = 20.12. Perform the subtraction next by lining up the decimal point and subtracting down: 20.12 – 17.8 = 2.32. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

19. **Answer choice (d) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 2.3 to the right once to get 23. Now, do the same thing to the dividend (1st number). We move the decimal point in 0.483 to the right once to get 4.83. Now divide 4.83 by 23 using long division which equals 0.21. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

20. **Answer choice (c) is the correct answer.** The 3 is in the ten thousandth place, so we look at the 2 to determine if we round the 3 up or down. Since 2 is less than 5, we round the 3 down and keep it as a 3. Therefore, we get 98.0483.

Decimals Practice Set 2

1. **Answer choice (c) is the correct answer.** When subtracting decimals, line up the decimal point and subtract down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

2. **Answer choice (d) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 4 times 7 equals 28. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 1. This means we want 1 digit after the decimal point in our number, so our answer is 2.8. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

3. **Answer choice (b) is the correct answer.** The 9 is in the tenths place, so we look at the 4 to determine if we round the 9 up or down. Since 4 is less than 5, we round the 9 down and keep it as a 9. Therefore, we get 35.9.

4. **Answer choice (a) is the correct answer.** When adding decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

5. **Answer choice (c) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. Since 12 doesn't have a decimal, we divide 28.8 by 12 using long division to get 2.4. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

6. **Answer choice (d) is the correct answer.** When subtracting decimals, line up the decimal point and subtract down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

7. **Answer choice (b) is the correct answer.** When adding decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

8. **Answer choice (c) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 0.05 to the right twice to get 5. Now, do the same thing to the dividend (1st number). We move the decimal point in 0.79 to the right twice to get 79. Now divide 79 by 5 using long division which

equals 15.8. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

9. **Answer choice (a) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 9 times 5 equals 45. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 2. This means we want 2 digits after the decimal point in our number, so our answer is 0.45. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

10. **Answer choice (b) is the correct answer.** When adding three decimals, line up the decimal point and add down like you would with whole numbers. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

11. **Answer choice (d) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 2605 times 78 equals 203,190. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 2. This means we want 2 digits after the decimal point in our number, so our answer is 2031.9. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

12. **Answer choice (b) is the correct answer.** The 9 is in the hundredths place, so we look at the 5 to the right of the 9 to determine if we round the 9 up or down. Since 5 is greater than or equal to 5, we round the 9 up. When we round up a 9, the 9 becomes a 0 and we round up the number to the left of the 9. Therefore, we get 35,628.10.

13. **Answer choice (a) is the correct answer.** When subtracting three numbers, you need to subtract the second number from the first, and then subtract the third number from the result. 82.3 – 70 = 12.3 and 12.3 – 6.18 = 6.12. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

14. **Answer choice (c) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 0.3 to the right once to get 3. Now, do the same thing to the dividend (1st number). We move the decimal point in 1.725 to the right once to get 17.25. Now divide 17.25 by 3 using long division which equals 5.75. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

15. **Answer choice (b) is the correct answer.** Use PEMDAS, perform the subtraction first by lining up the decimal point and subtracting down: 62.113 – 3.9 = 58.213. Perform the addition next by lining up the decimal point and adding down: 58.213 + 18.2 = 76.413. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

16. **Answer choice (a) is the correct answer.** The rightmost 0 is in the thousandths place, so we look at the 5 to determine if we round the 0 up or down. Since 5 is greater than or equal to 5, we round the 0 up to 1. Therefore, we get 4.091.

17. **Answer choice (c) is the correct answer.** When multiplying decimals, ignore the decimal points and multiply the two numbers: 57 times 912 equals 51,984. To determine where the decimal point goes, count up the total number of digits after the decimal point in the original numbers which is 3. This means we want 3 digits after the decimal point in our number, so our answer is 51.984. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

18. **Answer choice (b) is the correct answer.** The rightmost 9 is in the ten thousandths place, so we look at the 7 to determine if we round the 9 up or down. Since 7 is greater than or equal to 5, we round the 9 up. When we round up a 9, the 9 becomes a 0 and we round up the number to the left of the 9. Therefore, we get 134.9990.

19. **Answer choice (d) is the correct answer.** To divide decimals, move the decimal point of the divisor (2nd number) all the way to the right. We move the decimal point in 1.6 to the right once to get 16. Now, do the same thing to the dividend (1st number). We move the decimal point in 0.272 to the right once to get 2.72. Now divide 2.72 by 16 using long division which equals 0.17. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

20. **Answer choice (c) is the correct answer.** Use PEMDAS, perform the addition first by lining up the decimal point and adding down: 19.1 + 43.23 = 62.33. Perform the subtraction next by lining up the decimal point and subtracting down: 62.33 – 25.97 = 36.36. To see a step by step solution of this problem, follow this link and type in the problem: how to solve operations with decimals.

Converting Decimals, Fractions, and Percents Practice Set 1

1. **Answer choice (c) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right. Therefore, 0.5 = 50%.

2. **Answer choice (c) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left. Therefore, 0.4% = 0.004.

3. **Answer choice (b) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 1.6 is read as, "one and six tenths," which equals $1\frac{6}{10}$. Simplify this into $1\frac{3}{5}$, and change it into an improper fraction to get $\frac{8}{5}$.

4. **Answer choice (c) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right. Therefore, 0.045 = 4.5%.

5. **Answer choice (d) is the correct answer.** To change a fraction into a decimal, divide the numerator by the denominator: $7 \div 9 = 0.\overline{7}$.

6. **Answer choice (a) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right. Therefore, 2.62 = 262%.

7. **Answer choice (a) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 0.08 is read as, "eight hundredths," which equals $\frac{8}{100}$ which simplifies to $\frac{2}{25}$.

8. **Answer choice (c) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 0.84 is read as, "eighty four hundredths," which equals $\frac{84}{100}$.

9. **Answer choice (a) is the correct answer.** To change a mixed number into a decimal, keep the whole number part the same, and change the fraction part into a decimal by dividing the numerator by the denominator: $2 \div 5 = 0.4$ so $3\frac{2}{5} = 3.4$.

10. **Answer choice (b) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: $235\% = \frac{235}{100} = 2\frac{35}{100} = 2\frac{7}{20}$.

11. **Answer choice (d) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: $12.5\% = \frac{12.5}{100} = \frac{125}{1000} = \frac{1}{8}$.

12. **Answer choice (c) is the correct answer.** To change a fraction into a decimal, divide the numerator by the denominator: 17 ÷ 20 = 0.85.

13. **Answer choice (b) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left. Therefore, 045% = 0.45.

14. **Answer choice (b) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: 25% = $\frac{25}{100}$=$\frac{1}{4}$.

15. **Answer choice (d) is the correct answer.** First change the mixed number into a decimal. To change a mixed number into a decimal, keep the whole number part the same, and change the fraction part into a decimal by dividing the numerator by the denominator: 3 ÷ 4 = 0.75 so $3\frac{3}{4}$= 3.75. Now change the decimal into a percent by moving the decimal two places to the right: 3.75 = 375%.

16. **Answer choice (c) is the correct answer.** First change the fraction into a decimal. To change a fraction into a decimal, divide the numerator by the denominator: 1 ÷ 3 =$0.\overline{3}$. Now change the decimal into a percent by moving the decimal two places to the right:$0.\overline{3}$ = $33.\overline{3}$%.

17. **Answer choice (d) is the correct answer.** $25\frac{1}{2}$ % = 25.5%. To change a percent into a fraction, put it over 100 and simplify: 25.5% = $\frac{25.5}{100}$= $\frac{255}{1000}$.

18. **Answer choice (a) is the correct answer.** First change the fraction into a decimal. To change a fraction into a decimal, divide the numerator by the denominator: 3 ÷ 8 = 0.375. Now change the decimal into a percent by moving the decimal two places to the right: 0.375 = 37.5%.

19. **Answer choice (d) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left. Therefore, 9.23% = 0.0923.

20. **Answer choice (a) is the correct answer.** $3\frac{3}{4}$ % = 3.75%. To change a percent into a decimal, move the decimal two places to the left: 3.75% = 0.0375.

Converting Decimals, Fractions, and Percents Practice Set 2

1. **Answer choice (b) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left: 0.32% = 0.0032.

2. **Answer choice (c) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 0.062 is read as, "sixty two thousandths," which equals $\frac{62}{1000}$.

3. **Answer choice (d) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right: 5.072 = 507.2%.

4. **Answer choice (b) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 2.4 is read as "two and four tenths," which equals $2\frac{4}{10}$. This simplifies to $2\frac{2}{5}$.

5. **Answer choice (b) is the correct answer.** To change a fraction into a decimal, divide the numerator by the denominator: $2 \div 9 = 0.\overline{2}$.

6. **Answer choice (d) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right: 0.9 = 90%.

7. **Answer choice (a) is the correct answer.** To change a decimal into a fraction, think about how you read the decimal. 0.06 is read as "six hundredths," which equals $\frac{6}{100}$. This simplifies to $\frac{3}{50}$.

8. **Answer choice (d) is the correct answer.** To change a fraction into a decimal, divide the numerator by the denominator: 7 ÷ 25 = 0.28.

9. **Answer choice (c) is the correct answer.** To change a decimal into a percent, move the decimal point two places to the right: 0.072 = 7.2%.

10. **Answer choice (a) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: $62.5\% = \frac{62.5}{100} = \frac{625}{1000} = \frac{5}{8}$.

11. **Answer choice (d) is the correct answer.** To change a mixed number into a decimal, keep the whole number part the same, and change the fraction part into a decimal by dividing the numerator by the denominator: 3 ÷ 10 = 0.3 so $1\frac{3}{10}$ = 1.3.

12. **Answer choice (b) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: 405% = $\frac{405}{100}$ = $\frac{81}{20}$ = $4\frac{1}{20}$.

13. **Answer choice (a) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left: 86% = 0.86.

14. **Answer choice (b) is the correct answer.** First change the fraction into a decimal. To change a fraction into a decimal, divide the numerator by the denominator: 2 ÷ 3 = $0.\overline{6}$. Now change the decimal into a percent by moving the decimal two places to the right: $0.\overline{6}$ = $66.\overline{6}$ %.

15. **Answer choice (c) is the correct answer.** To change a percent into a fraction, put the percent over 100 and simplify: 75% = $\frac{75}{100}$ = $\frac{3}{4}$.

16. **Answer choice (d) is the correct answer.** First change the mixed number into a decimal. To change a mixed number into a decimal, keep the whole number part the same, and change the fraction part into a decimal by dividing the numerator by the denominator: 1 ÷ 5 = 0.2 so $5\frac{1}{5}$ = 5.2. Now change the decimal into a percent by moving the decimal two places to the right: 5.2 = 520%.

17. **Answer choice (a) is the correct answer.** $\frac{7}{10}$ = 0.7, so $12\frac{7}{10}$% = 12.7%. To change 12.7% into a fraction, put it over 100 and simplify: $\frac{12.7}{100}$ = $\frac{127}{1000}$.

18. **Answer choice (c) is the correct answer.** To change a percent into a decimal, move the decimal point two places to the left: 132.7% = 1.327.

19. **Answer choice (b) is the correct answer.** First change the fraction into a decimal. To change a fraction into a decimal, divide the numerator by the denominator: 1 ÷ 6 =$0.\overline{16}$. Now change the decimal into a percent by moving the decimal two places to the right:$0.\overline{16}$ = $16.\overline{6}$.%.

20. Answer choice (a) is the correct answer. $\frac{4}{5}$ = 0.8, so $2\frac{4}{5}$% = 2.8%. Change 2.8% into a decimal by moving the decimal point two places to the left to get 0.028.

Fractions of Numbers Practice Set 1

1. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{5}$ of 60 = $\frac{1}{5} \cdot 60 = \frac{1}{5} \cdot \frac{60}{1} = 12$.

2. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{3}$ of 39 = $\frac{1}{3} \cdot 39 = \frac{1}{3} \cdot \frac{39}{1} = 13$.

3. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{12}$ of 24 = $\frac{1}{12} \cdot 24 = \frac{1}{12} \cdot \frac{24}{1} = 2$.

4. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{7}$ of 42 = $\frac{1}{7} \cdot 42 = \frac{1}{7} \cdot \frac{42}{1} = 6$.

5. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{2}$ of 98 = $\frac{1}{2} \cdot 98 = \frac{1}{2} \cdot \frac{98}{1} = 49$.

6. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{2}{5}$ of 25 = $\frac{2}{5} \cdot 25 = \frac{2}{5} \cdot \frac{25}{1} = 10$.

7. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{3}{4}$ of 44 = $\frac{3}{4} \cdot 44 = \frac{3}{4} \cdot \frac{44}{1} = 33$.

8. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{4}{7}$ of 280 = $\frac{4}{7} \cdot 280 = \frac{4}{7} \cdot \frac{280}{1} = 160$.

9. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{5}{6}$ of 54 = $\frac{5}{6} \cdot 54 = \frac{5}{6} \cdot \frac{54}{1} = 45$.

10. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{9}{10}$ of 300 = $\frac{9}{10} \bullet 300 = \frac{9}{10} \bullet \frac{300}{1} = 270$.

11. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{4} \bullet x = 20 \rightarrow$ *divide both sides by* $\frac{1}{4} \rightarrow x = 80$.

12. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{9} \bullet x = 7 \rightarrow$ *divide both sides by* $\frac{1}{9} \rightarrow x = 63$.

13. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{8} \bullet x = 15 \rightarrow$ *divide both sides by* $\frac{1}{8} \rightarrow x = 120$.

14. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{3} \bullet x = 12 \rightarrow$ *divide both sides by* $\frac{1}{3} \rightarrow x = 36$.

15. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{15} \bullet x = 2 \rightarrow$ *divide both sides by* $\frac{1}{15} \rightarrow x = 30$.

16. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{3}{5} \bullet x = 18 \rightarrow$ *divide both sides by* $\frac{3}{5} \rightarrow x = 30$.

17. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{7}{8} \cdot x = 56 \rightarrow$ *divide both sides by* $\frac{7}{8} \rightarrow x = 64$.

18. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{5}{7} \cdot x = 50 \rightarrow$ *divide both sides by* $\frac{5}{7} \rightarrow x = 70$.

19. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{3}{10} \cdot x = 24 \rightarrow$ *divide both sides by* $\frac{3}{10} \rightarrow x = 80$.

20. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{2}{9} \cdot x = 18 \rightarrow$ *divide both sides by* $\frac{2}{9} \rightarrow x = 81$.

Fractions of Numbers Practice Set 2

1. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{4}$ of $52 = \frac{1}{4} \cdot 52 = \frac{1}{4} \cdot \frac{52}{1} = 13$.

2. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{9}$ of $81 = \frac{1}{9} \cdot 81 = \frac{1}{9} \cdot \frac{81}{1} = 9$.

3. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{6}$ of $12 = \frac{1}{6} \cdot 12 = \frac{1}{6} \cdot \frac{12}{1} = 2$.

4. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{8}$ of $24 = \frac{1}{8} \cdot 24 = \frac{1}{8} \cdot \frac{24}{1} = 3$.

5. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{1}{11}$ of $88 = \frac{1}{11} \bullet 88 = \frac{1}{11} \bullet \frac{88}{1} = 8$.

6. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{2}{3}$ of $36 = \frac{2}{3} \bullet 36 = \frac{2}{3} \bullet \frac{36}{1} = 24$.

7. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{4}{5}$ of $45 = \frac{4}{5} \bullet 45 = \frac{4}{5} \bullet \frac{45}{1} = 36$.

8. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{5}{9}$ of $18 = \frac{5}{9} \bullet 18 = \frac{5}{9} \bullet \frac{18}{1} = 10$.

9. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{7}{12}$ of $60 = \frac{7}{12} \bullet 60 = \frac{7}{12} \bullet \frac{60}{1} = 35$.

10. **Answer choice (c) is the correct answer.** In math, *of* means multiply, so to find a fraction of a number, multiply the fraction by the number: $\frac{5}{8}$ of $32 = \frac{5}{8} \bullet 32 = \frac{5}{8} \bullet \frac{32}{1} = 20$.

11. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{5} \bullet x = 5 \rightarrow$ *divide both sides by* $\frac{1}{5} \rightarrow x = 25$.

12. **Answer choice (a) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{17} \bullet x = 1 \rightarrow$ *divide both sides by* $\frac{1}{17} \rightarrow x = 17$.

13. **Answer choice (b) is the correct answer.** In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{7} \bullet x = 12 \rightarrow$ *divide both sides by* $\frac{1}{7} \rightarrow x = 84$.

14. Answer choice (c) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{6} \cdot x = 14 \rightarrow$ *divide both sides by* $\frac{1}{6} \rightarrow x = 84$.

15. Answer choice (c) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{1}{2} \cdot x = 38 \rightarrow$ *divide both sides by* $\frac{1}{2} \rightarrow x = 76$.

16. Answer choice (b) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{6}{7} \cdot x = 24 \rightarrow$ *divide both sides by* $\frac{6}{7} \rightarrow x = 28$.

17. Answer choice (d) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{9}{11} \cdot x = 18 \rightarrow$ *divide both sides by* $\frac{9}{11} \rightarrow x = 22$.

18. Answer choice (a) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{2}{3} \cdot x = 60 \rightarrow$ *divide both sides by* $\frac{2}{3} \rightarrow x = 90$.

19. Answer choice (c) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{3}{4} \cdot x = 18 \rightarrow$ *divide both sides by* $\frac{3}{4} \rightarrow x = 24$.

20. Answer choice (b) is the correct answer. In math, *of* means multiply, so set up and solve the following equation, using x to represent the unknown number: $\frac{6}{10} \cdot x = 30 \rightarrow$ *divide both sides by* $\frac{6}{10} \rightarrow x = 50$.

Time and Temperature Practice Set 1

1. **Answer choice (a) is the correct answer.** From 8:15 a.m. to 2:15 p.m. 6 hours have passed, and from 2:15 p.m. to 2:55 p.m. 40 minutes have passed. Therefore, from 8:15 a.m. to 2:55 p.m. 6 hours and 40 minutes have passed.

2. **Answer choice (d) is the correct answer.** 4 hours past 11:45 a.m. is 3:45 p.m., and 35 minutes past 3:45 p.m. is 4:20 p.m.

3. **Answer choice (b) is the correct answer.** Plug 20 in for C in the original equation and solve for F: $F = \frac{9}{5}(20) + 32 \rightarrow F = 36 + 32 \rightarrow F = 68°$.

4. **Answer choice (c) is the correct answer.** From 6:45 a.m. to 3:45 p.m. 9 hours have passed, and from 3:45 p.m. to 4:15 p.m. 30 minutes have passed. Therefore, from 6:45 a.m. to 4:15 p.m. 9 hours and 30 minutes have passed.

5. **Answer choice (c) is the correct answer.** Five and a half hours past 3:30 p.m. is 9:00 p.m., so when the plane arrived, it was 9:00 p.m. in San Francisco. Since New York is 3 hours ahead of San Francisco, it was 12:00 a.m. in New York when the plane arrived.

6. **Answer choice (a) is the correct answer.** Find the difference between 37 and –16: 37 – (–16) = 37 + 16 = 53 degrees.

7. **Answer choice (b) is the correct answer.** From 8:25 p.m. on Monday to 8:25 p.m. on Tuesday, a full day has passed, so 24 hours have passed. From 8:25 p.m. on Tuesday to 11:25 p.m on Tuesday, 3 hours have passed. From 11:25 p.m. on Tuesday to 12:05 a.m. on Wednesday, 40 minutes have passed. Therefore, the total time passed is 24 hours + 3 hours + 40 minutes = 27 hours and 40 minutes.

8. **Answer choice (b) is the correct answer.** Subtract 31 from 24 to get –7.

9. **Answer choice (d) is the correct answer.** 55 minutes + 1 hour and 20 minutes = 1 hour and 75 minutes = 2 hours and 15 minutes. Therefore, Robin spent a total of 2 hours and 15 minutes reading and playing video games. We need to go backwards 2 hours and 15 minutes from 1:20 p.m. 2 hours before 1:20 p.m. is 11:20 a.m., and 15 minutes before 11:20 a.m. is 11:05 a.m.

10. **Answer choice (c) is the correct answer.** Plug 41 in for F in the original equation and solve for C: $41 = \frac{9}{5}C + 32 \rightarrow 9 = \frac{9}{5}C \rightarrow C = 5°$.

Time and Temperature Practice Set 2

1. **Answer choice (c) is the correct answer.** From 11:25 p.m. to 6:25 a.m, 7 hours have passed. From 6:25 a.m. to 7:15 a.m. 50 minutes have passed. Therefore, from 11:25 p.m. to 7:15 a.m. 7 hours and 50 minutes have passed.

2. **Answer choice (a) is the correct answer.** Find the difference between 24 and –18: 24 – (–18) = 24 + 18 = 42.

3. **Answer choice (b) is the correct answer.** From 10:45 a.m. to 4:45 p.m. 6 hours have passed, and from 4:45 p.m. to 5:30 p.m. 45 minutes have passed. Therefore, from 10:45 a.m. to 5:30 p.m., 6 hours and 45 minutes have passed.

4. **Answer choice (d) is the correct answer.** Plug –10 in for C in the original equation and solve for F: $F = \frac{9}{5}(-10) + 32 \rightarrow F = -18 + 32 \rightarrow F = 14°$.

5. **Answer choice (a) is the correct answer.** We need to go backwards 7 hours and 25 minutes from 3:40 p.m. 7 hours backwards from 3:40 p.m. is 8:40 a.m., and 25 minutes backwards from 8:40 a.m. is 8:15 a.m.

6. **Answer choice (b) is the correct answer.** 4 hours and 35 minutes past 4:30 a.m. is 9:05 a.m., so when the plane arrived, it was 9:05 a.m. in Florida. Since Colorado is 2 hours behind Florida, it was 7:05 a.m. in Colorado when the plane arrived.

7. **Answer choice (d) is the correct answer.** Subtract 13° from –8°: –8° – 13° = –21°.

8. **Answer choice (c) is the correct answer.** 1 hour and 15 minutes + 35 minutes = 1 hour and 50 minutes, so Miles spent a total of 1 hours and 50 minutes on his homework. 1 hour past 4:20 p.m. is 5:20 p.m, and 50 minutes past 5:20 p.m. is 6:10 p.m.

9. **Answer choice (a) is the correct answer.** Plug 50 in for F in the original equation and solve for C: $50 = \frac{9}{5}C + 32 \rightarrow 18 = \frac{9}{5}C \rightarrow C = 10°$.

10. **Answer choice (b) is the correct answer.** The time passed from 1:45 a.m. on Thursday to 1:45 a.m. on Friday is 24 hours. The time passed from 1:45 a.m. on Friday to 9:45 p.m. on Friday is 20 hours. Therefore, the total time passed is 24 hours + 20 hours = 44 hours.

Conversions Practice Set 1

1. **Answer choice (d) is the correct answer.** There are 4 quarts in a gallon, so find the number of quarts in two and a half (2.5) gallons by multiplying 2.5 by 4: 2.5 • 4 = 10 quarts.

2. **Answer choice (b) is the correct answer.** There are 1,000 grams in 1 kilogram, so find the number of grams in 2.4 kilograms by multiplying 2.4 by 1,000: 2.4 • 1000 = 2,400 grams.

3. **Answer choice (d) is the correct answer.** There are 1,000,000 milliliters in 1 kiloliter, so find the number of kiloliters in 4,000 milliliters by dividing 4,000 by 1,000,000: 4,000 ÷ 1,000,000 = 0.004 kiloliters.

4. **Answer choice (a) is the correct answer.** There are 36 inches in 1 yard, so find the number of yards in 144 inches by dividing 144 by 36: 144 ÷ 36 = 4 yards.

5. **Answer choice (b) is the correct answer.** There are 24 hours in 1 day, so find the number of hours in 2 days by multiplying 24 by 2: 24 • 2 = 48 hours. There are 60 minutes in 1 hour, so find the number of minutes in 48 hours by multiplying 48 by 60: 48 • 60 = 2,880 minutes.

6. **Answer choice (c) is the correct answer.** There are 3 feet in 1 yard, so find the number of feet in 18 yards by multiplying 18 by 3: 18 • 3 = 54 feet.

7. **Answer choice (c) is the correct answer.** There are 3600 seconds in an hour, so find the number of hours in 120 seconds by dividing 120 by 3600: $120 \div 3600 = \frac{120}{3600} = \frac{1}{30}$ hours.

8. **Answer choice (d) is the correct answer.** There are 2 cups in 1 pint, so find the number of pints in 24 cups by dividing 24 by 2: 24 ÷ 2 = 12 pints.

9. **Answer choice (b) is the correct answer.** There are 4 cups in 1 quart. Therefore, there are 24 cups in 6 quarts because 6 • 4 = 24.

10. **Answer choice (d) is the correct answer.** There are 100 cm in 1 meter. Therefore, 200 cm equals 2 meters because 200 ÷ 100 = 2.

Conversions Practice Set 2

1. **Answer choice (a) is the correct answer.** There are 1,000 milliliters in 1 liter, so find the number of liters in 530 milliliters by dividing 530 by 1,000: 530 ÷ 1,000 = 0.53 liters.

2. **Answer choice (a) is the correct answer.** There are 12 inches in 1 foot, so find the number of inches in 24 feet by multiplying 24 by 12: 24 • 12 = 288 inches.

3. **Answer choice (c) is the correct answer.** There are 8 pints in 1 gallon, so find the number of pints in one and a half (1.5) gallons by multiplying 1.5 by 8: 1.5 • 8 = 12 pints.

4. **Answer choice (b) is the correct answer.** There are 12 hours in half of a day, and there are 3,600 seconds in 1 hour. Find the number of seconds in 12 hours by multiplying 12 by 3,600: 12 • 3,600 = 43,200 seconds.

5. **Answer choice (b) is the correct answer.** There are 1,000,000 milligrams in 1 kilogram, so find the number of milligrams in 0.06 kilograms by multiplying 0.06 by 1,000,000: 0.06 • 1,000,000 = 60,000 milligrams.

6. **Answer choice (d) is the correct answer.** There are 36 inches in 1 yard, so find the number of inches in 9 yards by multiplying 9 by 36: 9 • 36 = 324 inches.

7. **Answer choice (d) is the correct answer.** There are 8 fluid ounces in 1 cup, so find the number of fluid ounces in 4 cups by multiplying 4 by 8: 4 • 8 = 32 fluid ounces.

8. **Answer choice (a) is the correct answer.** There are 60 minutes in 1 hour, so find the number of hours in 195 minutes by dividing 195 by 60: 195 ÷ 60 = 3.25 hours.

9. **Answer choice (b) is the correct answer.** There are 100 cm in 1 meter, so 70 cm equals 0.7 meters because 70 ÷ 100 = 0.7.

10. **Answer choice (c) is the correct answer.** There are 8 pints in 1 gallon, so 12 pints equals 1.5 gallons because 12 ÷ 8 = 1.5.

Intersection and Union Practice Set 1

1. **Answer choice (c) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 1, 2, 5, 6, 7, 8, and 9 are all of the numbers that show up in either set.

2. **Answer choice (b) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: m and p are the only letters that show up in both sets.

3. **Answer choice (a) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 1, 3, and 10 are the only numbers that show up in both sets.

4. **Answer choice (d) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 1, 2, 3, 4, 8, 10, and 11 are all of the numbers that show up in either set.

5. **Answer choice (a) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 14 is the only number that shows up in both sets.

6. **Answer choice (d) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: a, b, f, g, k, p, and z are all of the letters that show up in either set.

7. **Answer choice (c) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 1, 3, 5 and 7 are all of the numbers that show up in either set.

8. **Answer choice (b) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 8, 13 and 19 are the only numbers that show up in both sets.

9. **Answer choice (d) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set. Therefore, since the union includes 1 and 2 and Set A does not include 1 and 2, Set B must include 1 and 2. Answer choice (d) is the only set that includes 1 and 2.

10. **Answer choice (a) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets. Since the intersection of the two sets is 4, 6, 7, the only numbers that the two sets have in common are 4, 6, and 7. Therefore, Set B cannot have a 1 or 9 in it. This eliminates answer choices (b) and (d). Set B must have a 4, 6, and 7, so this eliminates answer choice (c). We are left with answer choice (a).

Intersection and Union Practice Set 2

1. **Answer choice (b) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 6, 7 and 9 are the only numbers that show up in both sets.

2. **Answer choice (c) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 5, 6, 9, 11, 12, and 18 are all of the numbers that show up in either set.

3. **Answer choice (a) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 1, 2, 6, 9, 15, and 17 are all of the numbers that show up in either set.

4. **Answer choice (b) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: a and g are the only letters that show up in both sets.

5. **Answer choice (d) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 8 and 10 are the only numbers that show up in both sets.

6. **Answer choice (d) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: l, m, n, o, p, q, r, and s are all of the letters that show up in either set.

7. **Answer choice (b) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets: 5, 10, and 20 are the only numbers that show up in both sets.

8. **Answer choice (a) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set: 0, 3, 4, 5, 12, and 15 are all of the numbers that show up in either set.

9. **Answer choice (c) is the correct answer.** The intersection of two sets consists of all of the numbers/letters that show up in both sets. Since the intersection of the two sets is 1, 5, 9, 11, the only numbers that the two sets have in common are 1, 5, 9, and 11. Therefore, Set B cannot have a 3 or 7 in it. This eliminates answer choices (a), (b), and (d). We are left with answer choice (c).

10. **Answer choice (b) is the correct answer.** The union of two sets consists of all of the numbers/letters that show up in either set. Therefore, since the union includes 4 and 7 and Set A does not include 4 and 7, Set B must include 4 and 7. This eliminates answer choice (c). Since the union only includes 2, 4, 6, 7, 9, and 14, Set B cannot include any other number. This eliminates answer choice (a) and (d). We are left with choice (b).

Mean, Median, Mode, and Range Practice Set 1

1. **Answer choice (b) is the correct answer.** The mean of a data set is equal to the sum of the numbers divided by the number of terms: (10 + 340 + 15 + 223 + 55 + 77) ÷ 6 = 720 ÷ 6 = 120.

2. **Answer choice (c) is the correct answer.** The mode of a data set is the number that appears the most: 45 appears the most, so 45 is the mode.

3. **Answer choice (a) is the correct answer.** The median of a data set is the middle number when the numbers are ordered from least to greatest. Order the numbers from least to greatest: 7, 7, 19, 23, 26, 47, 80. 23 is the middle number, so 23 is the median.

4. **Answer choice (d) is the correct answer.** The range of a data set is equal to the difference between the highest and lowest value. The highest value is 96 and the lowest value is 7, so the range equals 96 – 7 = 89.

5. **Answer choice (d) is the correct answer.** The mode of a data set is the number that appears the most: –5 appears the most, so –5 is the mode. The median of a data set is the middle number when the numbers are ordered from least to greatest. Order the numbers from least to greatest: –10, –5, –5, 3, 5, 12. Since there is an even number of terms, the median is the mean of the middle two numbers. The mean of –5 and 3 equals (–5 + 3) ÷ 2 = –2 ÷ 2 = –1. Find the sum of the median and mode: –5 + (–1) = –6.

6. **Answer choice (a) is the correct answer.** The average of a set of data is the same as the mean which equals the sum of the numbers divided by the number of terms. Therefore, the average age of all 5 family members = (50 + 12 + 12 + 45 + 6) ÷ 5 = 125 ÷ 5 = 25.

7. **Answer choice (c) is the correct answer.** The median of a data set is the middle number when the numbers are ordered from least to greatest. If we order the numbers from least to greatest we get 3, 40, 45, 45, 45, 50, so the median is 45. The range of a data set equals the difference between the highest and lowest values, so the range equals 50 – 3 = 47. Therefore, the range is not lower than the median, so answer choice (c) is false.

8. **Answer choice (b) is the correct answer.** The average of a set of data is the same as the mean which equals the sum of the numbers divided by the number of terms. Therefore, we can set up the following equation using x to represent the unknown number: $(x + 9) \div 2 = 15$. Solve the equation by multiplying both sides by 2 and then subtracting 9: $x + 9 = 30 \rightarrow x = 21$.

9. **Answer choice (d) is the correct answer.** If you add or subtract the same number from every number in a data set, the mean, median, and mode change by the number you added or subtracted. The range stays the same because the highest and lowest number each change by the number you added or subtracted, so the difference between the highest and lowest number doesn't change.

10. **Answer choice (b) is the correct answer.** If the average weight of three dogs is 12 pounds, we can let each dog weigh 12 points (the average of 12, 12, and 12 equals 12). If the average weight of five cats is 8 pounds, we can let each cat weigh 8 pounds (the average of 8, 8, 8, 8, and 8 equals 8). Find the average weight of the cats and dogs by dividing the sum of their weights by the number of animals: $(12+12+12+8+8+8+8+8) \div 8 = 76 \div 8 = 9.5$ pounds.

Mean, Median, Mode, and Range Practice Set 2

1. **Answer choice (a) is the correct answer.** The mode of a data set is the number that appears the most: 86 appears the most, so 86 is the mode.

2. **Answer choice (d) is the correct answer.** The median of a data set is the middle number when the numbers are ordered from least to greatest. Order the numbers from least to greatest: 4, 4, 6, 17, 18, 23, 29. 17 is the middle number, so 17 is the median.

3. **Answer choice (c) is the correct answer.** The mode of a data set is the number that appears the most, so the mode of this data set is 15. The mean of a data set equals the sum of the numbers divided by the number of terms. Because the mode of this data set is the lowest number, the mean has to be higher than the mode. You could find the mean to confirm this: $(15 + 18 + 15 + 15 + 16 + 17) \div 6 = 96 \div 6 = 16$.

4. **Answer choice (a) is the correct answer.** The mean of a data set is equal to the sum of the numbers divided by the number of terms: $(–80 + 43 + 22 + (–57) + (–100) + 30 + 2) \div 7 = –140 \div 7 = –20$.

5. **Answer choice (c) is the correct answer.** The mode of a data set is the number that appears the most: 30 appears the most, so 30 is the mode. The median of a data set is the middle number when the numbers are ordered from least to greatest. Order the numbers from least to greatest: 10, 20, 30, 30, 40, 50, 60, 80. Since there is an even number of terms, the median is the mean of the middle two numbers. The mean of 30 and 40 equals $(30 + 40) \div 2 = 70 \div 2 = 35$. Find the mean of the median and mode: $(30 + 35) \div 2 = 65 \div 2 = 32.5$.

6. **Answer choice (a) is the correct answer.** The range of a data set is equal to the difference between the highest and lowest value. The highest value is 80 and the lowest value is –22, so the range equals 80 – (–22) = 80 + 22 = 102.

7. **Answer choice (b) is the correct answer.** The average is the same as the mean which is equal to the sum of the numbers divided by the number of terms. Therefore, if the sum of three numbers is 42, the average is 42 ÷ 3 = 14.

8. **Answer choice (c) is the correct answer.** If the average age of two girls is 10 years, let each girl's age equal 10 years (the average of 10 and 10 equals 10). If the average age of three boys is 15, let each boy's age equal 15 (the average of 15, 15, and 15 equals 15). Find the average age of all five children by dividing the sum of their ages by the number of children: (10 + 10 + 15 + 15 + 15) ÷ 5 = 65 ÷ 5 =13 years.

9. **Answer choice (d) is the correct answer.** If you add or subtract the same number from every number in a data set, the mean, median, and mode change by the number you added or subtracted, and the range stays the same. Therefore, the mode increases by 5.

10. **Answer choice (b) is the correct answer.** Since the average test score of five children is 85%, let each child's test score equal 85% (the average of 85, 85, 85, 85, and 85 equals 85). Find the average test score of all six children by dividing the sum of their scores by the number of children: (85 + 85 + 85 + 85 + 85 + 55) ÷ 6 = 480 ÷ 6 = 80%.

Tables and Graphs Practice Set 1

1. **Answer choice (b) is the correct answer.** 20 girls chose yellow and 25 boys chose red: 25 – 20 = 5.

2. **Answer choice (d) is the correct answer.** There are a total of 5 + 30 + 20 = 55 girls, and 5 of those girls chose red: 5/55 = 1/11.

3. **Answer choice (a) is the correct answer.** One gallon of red paint from Paint With Me costs $2.75, so 3 gallons cost 3 • 2.75 = $8.25.

4. **Answer choice (c) is the correct answer.** The change in revenue between April and June was $5,000. The change in revenue between March and April was $10,000. The change in revenue between July and August was $15,000. The change in revenue between August and September was $20,000.

5. **Answer choice (c) is the correct answer.** The vertical axis of the graph shows Lydia's speed, so the highest speed is at the highest point on the graph which is between 6 and 8 minutes.

6. **Answer choice (d) is the correct answer.** The total percentage of the four slices must add to 100%, so Lizard = 100 – 40 – 30 – 20 = 10%. Therefore, 20% more of the people chose elephant than lizard (30% – 10% = 20%). Find 20% of 550: 30% of 550 = 0.2 • 550 = 110 people.

7. **Answer choice (b) is the correct answer.** Add the number of trees that are 70-79 feet tall and 80-89 feet tall: 4 + 6 = 10 trees.

8. **Answer choice (b) is the correct answer.** The median is the middle number of a data set when the numbers are ordered from least to greatest. If we wrote these data points out, we would have 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1 … and so on. Therefore, the middle data point will be a 2.

9. **Answer choice (a) is the correct answer.** 26 out of 50 men and women do their own laundry. This equals 52 out of 100 which is 52%.

10. **Answer choice (c) is the correct answer.** 12 out of 20 women don't do their own laundry: 12/20 = 2/5.

Tables and Graphs Set 2

1. **Answer choice (b) is the correct answer.** The total percentage of the four slices must add to 100%. Therefore, the percent representing soccer equals 100 – 35 – 30 – 15 = 20%. This means 35% of people chose soccer or tennis (20% + 15% = 35%). Find 35% of 400: 35% of 400 = 0.35 • 400 = 140 people.

2. **Answer choice (a) is the correct answer.** Add up the number of adults who make 25 to 39 thousand dollars and 40 to 54 thousand dollars: 1 + 7 = 8 adults.

3. **Answer choice (c) is the correct answer.** While we cannot determine the exact median from a histogram since a histogram does not show exact data points, we can determine a range for the medians. The median is the middle number of a data set when the numbers are ordered from least to greatest. Therefore, the median of this data would fall in between $55,000 and $69,000, so $61,000 is a possible median.

4. **Answer choice (d) is the correct answer.** The price of 2 gallons at Paint With Me equals 2 • 3.50 = $7.00, and the price of 2 gallons of red paint from Paint and More equals 2 • 4.25 = $8.50. The difference between the two prices equals $8.50 – $7.00 = $1.50.

5. **Answer choice (c) is the correct answer.** The population in Town D is 4,000, and the population in Town B is 18,000. The difference equals 18,000 – 4,000 = 14,000.

6. **Answer choice (b) is the correct answer.** 16 women out of 30 prefer writing or singing: 16/30 = 8/15.

7. **Answer choice (a) is the correct answer.** 7 out of 25 men prefer singing. This equals 28 out of 100 which equals 28%.

8. **Answer choice (d) is the correct answer.** The mode is the data point that appears the most. The most number of students read 9 books, so 9 is the mode.

9. **Answer choice (d) is the correct answer.** In 2008, the stock price was $10. In 2009, the stock price was $6. The percent change equals the difference between the two prices divided by the starting price times 100: (10 – 6) ÷ 10 = 4 ÷ 10 = 0.4 and 0.4 • 100 = 40%.

10. **Answer choice (d) is the correct answer.** The graph is a distance vs. time graph, so John was stopped when his distance was not changing. His distance stayed the same in between 30 and 40 minutes.

Ratios Practice Set 1

1. **Answer choice (a) is the correct answer.** The ratio of peaches to pears equals 16:12 which simplifies to 4:3.

2. **Answer choice (b) is the correct answer.** The units in the parts of a ratio must be the same. 4 feet equals 48 inches (4 • 12 = 48), so the height to width ratio is 48:30 which simplifies to 8:5.

3. **Answer choice (c) is the correct answer.** The ratio of red to green marbles is 15:10 which simplifies to 3:2.

4. **Answer choice (d) is the correct answer.** The units in the parts of a ratio must be the same. 3 hours equals 180 minutes (3 • 60 = 180), so the ratio of time Carol spent on homework to the time Timothy spent is 180:45 which simplifies to 4:1.

5. **Answer choice (c) is the correct answer.** Set up and solve the equation $8x + 3x = 88$, where $8x$ represents the number of green apples and $3x$ represents the number of yellow apples: $8x + 3x = 88 \rightarrow 11x = 88 \rightarrow x = 8$. Therefore, the number of green apples equals $8 \bullet 8 = 64$.

6. **Answer choice (a) is the correct answer.** Set up and solve the following proportion, using x as the number of basketballs: $\frac{4}{7} = \frac{56}{x} \rightarrow 4x = 392 \rightarrow x = 98$ basketballs.

7. **Answer choice (d) is the correct answer.** Set up and solve the equation $9x + 5x = 42$ where $9x$ represents the larger number and $5x$ represents the smaller number: $9x + 5x = 42 \rightarrow 14x = 42 \rightarrow x = 3$. Therefore, the larger numbers equals $9 \bullet 3 = 27$, and the smaller number equals $5 \bullet 3 = 15$. The difference between the numbers is $27 – 15 = 12$.

8. **Answer choice (b) is the correct answer.** Set up and solve the following proportion, using x as the number of girls: $\frac{5}{4} = \frac{20}{x} \rightarrow 5x = 80 \rightarrow x = 16$ girls. Therefore, the total number of students equals $20 + 16 = 36$ students.

9. **Answer choice (c) is the correct answer.** We know there are 8 black blocks, and we know the ratio of black to total blocks is 1:2. Set up and solve the following proportion, using x as the total number of blocks: $\frac{1}{2} = \frac{8}{x} \rightarrow x = 16$ total blocks. Find the number of red blocks by subtracting the number of black and white blocks from the total number of blocks: $16 – 8 – 6 = 2$ red blocks.

10. **Answer choice (b) is the correct answer.** Change $2\frac{2}{3}$ to a mixed number to get $\frac{8}{3}$. Set up and solve the following proportion, using x to represent the width of the rectangle: $\frac{3}{8} = \frac{x}{(8/3)} \rightarrow 8x = 8 \rightarrow x = 1$ unit wide.

Ratios Practice Set 2

1. **Answer choice (c) is the correct answer.** The ratio of sneakers to sandals is 18:15 which simplifies to 6:5.

2. **Answer choice (c) is the correct answer.** The units in the parts of a ratio must be the same. 6 yards equals 18 feet ($6 \bullet 3 = 18$), so the ratio of the radius of circle A to the radius of circle B is 18:9 which simplifies to 2:1.

3. **Answer choice (a) is the correct answer.** The ratio of gummies to chocolates is 24:12 which simplifies to 2:1.

4. **Answer choice (d) is the correct answer.** The units in the parts of a ratio must be the same. 4 gallons equals 16 quarts (4 • 4 = 16), so the ratio of the amount of water that Rachel drank to the amount of water Oliver drank is 16:18 which simplifies to 8:9.

5. **Answer choice (b) is the correct answer.** Set up and solve the equation $11x + 4x = 60$, where $11x$ represents the number of purple marbles and $4x$ represents the number of orange marbles: $11x + 4x = 60 \rightarrow 15x = 60 \rightarrow x = 4$. Therefore, the number of purple marbles equals 11 • 4 = 44 purple marbles.

6. **Answer choice (b) is the correct answer.** Set up and solve the following proportion, using x as the number of boys in the class: $\frac{3}{7} = \frac{x}{21} \rightarrow 7x = 63 \rightarrow x = 9$ boys. Therefore, the total number of students equals 21 + 9 = 30 students.

7. **Answer choice (a) is the correct answer.** Set up and solve the following proportion, using x to represent the number of fiction books: $\frac{5}{2} = \frac{x}{120} \rightarrow 2x = 600 \rightarrow x = 300$ fiction books.

8. **Answer choice (c) is the correct answer.** Set up and solve the equation $7x + 2x = 63$, where $7x$ represents the larger number and $2x$ represents the smaller number: $7x + 2x = 63 \rightarrow 9x = 63 \rightarrow x = 7$. Therefore, the larger number equals 7 • 7 = 49, and the smaller number equals 2 • 7 = 14, so the difference between the numbers equals 49 – 14 = 35.

9. **Answer choice (d) is the correct answer.** There are 8 white socks, and the ratio of white to total socks is 2:9. Set up and solve the following proportion, using x as the total number of socks: $\frac{2}{9} = \frac{8}{x} \rightarrow 2x = 72 \rightarrow x = 36$ total socks. Find the number of green socks by subtracting the number of pink and white socks from the total number of socks: 36 – 10 – 8 = 18 green socks.

10. **Answer choice (d) is the correct answer.** Change $3\frac{4}{7}$ to a mixed number to get $\frac{25}{7}$. Set up and solve the following proportion, using x to represent the height of the rectangle: $\frac{8}{7} = \frac{(25/7)}{x} \rightarrow 8x = 25 \rightarrow x = \frac{25}{8}$ units tall.

Proportions Practice Set 1

1. **Answer choice (a) is the correct answer.** Cross multiply and solve: $18x = 6 \bullet 21 \rightarrow 18x = 126 \rightarrow x = 7$.

2. **Answer choice (c) is the correct answer.** Cross multiply and solve: $20a = 12 \bullet 15 \rightarrow 20a = 180 \rightarrow a = 9$.

3. **Answer choice (b) is the correct answer.** Cross multiply and solve: $49b = 42 \bullet 14 \rightarrow 49b = 588 \rightarrow b = 12$.

4. **Answer choice (b) is the correct answer.** Cross multiply and solve: $8y = 12 \bullet 11 \rightarrow 8y = 132 \rightarrow y = 16.5$.

5. **Answer choice (b) is the correct answer.** Cross multiply and solve: $15t = 17 \bullet 9 \rightarrow 15t = 153 \rightarrow t = 10.2$.

6. **Answer choice (c) is the correct answer.** Set up and solve the following proportion, using x as the cost of 8 apples: $\frac{6}{9} = \frac{8}{x} \rightarrow 6x = 72 \rightarrow x = \$12$.

7. **Answer choice (d) is the correct answer.** Set up and solve the following proportion, using x as the number of vans needed to fit 156 people: $\frac{5}{65} = \frac{x}{156} \rightarrow 65x = 780 \rightarrow x = 12$ vans.

8. **Answer choice (d) is the correct answer.** Set up and solve the following proportion, using x as the money needed for 10 prizes: $\frac{4}{3} = \frac{10}{x} \rightarrow 4x = 30 \rightarrow x = \$7.50$.

9. **Answer choice (a) is the correct answer.** The height to shadow ratio of the child must equal the height to shadow ratio of the building. Set up and solve the following proportion, using x as the height of the building: $\frac{5}{3} = \frac{x}{15} \rightarrow 3x = 75 \rightarrow x = 25$ ft.

10. **Answer choice (c) is the correct answer.** Set up and solve the following proportion, using x as the number of inches that represents 54 miles: $\frac{2.4}{36} = \frac{x}{54} \rightarrow 36x = 129.6 \rightarrow x = 3.6$ inches.

Proportions Practice Set 2

1. **Answer choice (d) is the correct answer.** Cross multiply and solve: $4a = 7 \bullet 32 \rightarrow 14a = 224 \rightarrow a = 56$.

2. **Answer choice (a) is the correct answer.** Cross multiply and solve: $20x = 45 \bullet 8 \rightarrow 20x = 360 \rightarrow x = 18$.

3. **Answer choice (c) is the correct answer.** Cross multiply and solve: $21z = 6 \bullet 56 \rightarrow 21z = 336 \rightarrow z = 16$.

4. **Answer choice (a) is the correct answer.** Cross multiply and solve: $4k = 9 \bullet 13 \rightarrow 4k = 117 \rightarrow k = 29.25$.

5. **Answer choice (d) is the correct answer.** Cross multiply and solve: $14t = 18 \bullet 5 \rightarrow 14t = 90 \rightarrow t = \frac{90}{14} = \frac{45}{7}$.

6. **Answer choice (a) is the correct answer.** Set up and solve the following proportion, using x as the cost of 9 t-shirts: $\frac{16}{100} = \frac{9}{x} \rightarrow 16x = 900 \rightarrow x = \$56.25$.

7. **Answer choice (b) is the correct answer.** Set up and solve the following proportion, using x as the number of beams needed to support 175 pounds: $\frac{8}{50} = \frac{x}{175} \rightarrow 50x = 1400 \rightarrow x = 28$ beams.

8. **Answer choice (d) is the correct answer.** Set up and solve the following proportion, using x as the number of tablespoons of sugar: $\frac{4}{15} = \frac{x}{40} \rightarrow 15x = 160 \rightarrow x = \frac{160}{15} = \frac{32}{3} = 10\frac{2}{3}$ tablespoons.

9. **Answer choice (c) is the correct answer.** The height to shadow ratio of the flagpole must equal the height to shadow ratio of the person. Set up and solve the following proportion, using x as the length of the person's shadow: $\frac{24}{18} = \frac{6}{x} \rightarrow 24x = 108 \rightarrow x = 4.5$ ft.

10. **Answer choice (c) is the correct answer.** Set up and solve the following proportion, using x as the number of cm that represents 20 miles: $\frac{4.2}{30} = \frac{x}{20} \rightarrow 30x = 84 \rightarrow x = 2.8$ cm.

Rates Practice Set 1

1. **Answer choice (b) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $d = 45 \cdot 3 \rightarrow d = 135$ miles.

2. **Answer choice (a) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $1500 = r \cdot 10 \rightarrow r = 150$ mph.

3. **Answer choice (c) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $420 = 60 \cdot t \rightarrow t = 7$ hours.

4. **Answer choice (d) is the correct answer.** Since the speed in is meters per second, change 30 minutes into seconds: $30 \cdot 60 = 1800$ seconds. Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $d = 5 \cdot 1800 = 9000$ meters.

5. **Answer choice (b) is the correct answer.** We want Michael's speed in meters per second, so change 5 minutes into seconds: $5 \cdot 60 = 300$ seconds. Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $480 = r \cdot 300 \rightarrow 1.6$ m/s.

6. **Answer choice (d) is the correct answer.** We need to use a variation of the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time. Instead of $d = rt$, we can say that $v = rt$, where v represents the volume in gallons: $15{,}000 = 20 \cdot t \rightarrow t = 750$ minutes. The problem wants to know the time in *hours*, so change 750 minutes to hours: $750 \div 60 = 12.5$ hours.

7. **Answer choice (a) is the correct answer.** If Justin can mow $\frac{2}{9}$ of the lawn in 14 minutes, then he can mow $\frac{1}{9}$ of the lawn in 7 minutes. Therefore, to find the total time it takes him to mow the entire lawn, or $\frac{9}{9}$ of the lawn, multiply 7 by 9: $7 \cdot 9 = 63$ minutes.

8. **Answer choice (c) is the correct answer.** First, eliminate answer choice (a) because if we increase the number of people painting the room, the amount of time should decrease. The number of people is inversely related to the number of hours. Therefore, if we double the number of people, the time it takes to paint the room is cut in half: $2 \div 2 = 1$ hour.

9. **Answer choice (c) is the correct answer.** Ingrid needs to paint $\frac{7}{13}$ *more* of the room. If Ingrid can paint $\frac{6}{13}$ of the room in 1.2 hours, then the time it takes her to paint $\frac{1}{13}$ of the

room is one-sixth of that: 1.2 ÷ 6 = 0.2 hours. Therefore, the time it takes to paint $\frac{7}{13}$ of the room equals the time it takes to paint $\frac{6}{13}$ plus the time it takes to paint $\frac{1}{13}$: 1.2 + 0.2 = 1.4 hours.

10. **Answer choice (d) is the correct answer.** First, eliminate answer choice (a) because if we decrease the number of people building the sandcastle, the amount of time should increase. The number of people is inversely related to the time it takes to build the sandcastle. Therefore, if we divide the number of people by 3, we need to multiply the time by 3: 30 • 3 = 90 minutes.

Rates Practice Set 2

1. **Answer choice (d) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $950 = r \cdot 2 \rightarrow r = 475$ mph.

2. **Answer choice (c) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $d = 80 \cdot 2.5 \rightarrow d = 200$ miles.

3. **Answer choice (a) is the correct answer.** Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $440 = 40 \cdot t \rightarrow t = 11$ minutes.

4. **Answer choice (b) is the correct answer.** We want to find the number of minutes it takes to fill the tank, so changle 450 gallons per hour to gallons per minute: 450 ÷ 60 = 7.5 gallons per minute. We need to use a variation of the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time. Instead of $d = rt$, we can say that $v = rt$, where v represents the volume in gallons: $30 = 7.5 \cdot t \rightarrow t = 4$ minutes.

5. **Answer choice (c) is the correct answer.** We want to find the speed in meters per second, so change 13 minutes into seconds: 13 • 60 = 780 seconds. Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $78 = r \cdot 780 \rightarrow r = 0.1$ m/s.

6. **Answer choice (a) is the correct answer.** The speed is in miles per hour, so change 45 minutes into hours: 45 ÷ 60 = 0.75 hours. Use the equation $d = rt$, where d represents distance, r represents rate/speed, and t represents time: $d = 5 \cdot 0.75 \rightarrow d = 3.75$ miles.

7. **Answer choice (c) is the correct answer.** Andrew needs to complete $\frac{5}{11}$ *more* of his homework. If he can complete $\frac{7}{11}$ of his homework in 42 minutes, we can find the time it

takes him to complete $\frac{1}{11}$ of his homework by finding one-seventh of that: 42 ÷ 7 = 6 minutes. If it takes Andrew 6 minutes to complete $\frac{1}{11}$, we can multiply that by 5 to find how long it takes him to complete $\frac{5}{11}$: 6 • 5 = 30 minutes.

8. **Answer choice (a) is the correct answer.** First, eliminate answer choice (b) because if we decrease the number of people building the house, the time it takes to build the house will increase. The number of people building the house is inversely related to the time it takes to build the house. Therefore, if we divide the number of people by 3, we need to multiply the time by 3: 1.5 • 3 = 4.5 weeks.
9. **Answer choice (b) is the correct answer.** Find the time it takes Zoe to wash $\frac{1}{7}$ of the windows by dividing the time it takes her to wash $\frac{3}{7}$ of the windows by 3: 24 ÷ 3 = 8 minutes to wash $\frac{1}{7}$ of the windows. Therefore, to find the time it takes to wash all of the windows, or $\frac{7}{7}$ of the windows, multiply the time it takes to wash $\frac{1}{7}$ of the windows by 7: 8 • 7 = 56 minutes.
10. **Answer choice (c) is the correct answer.** First, eliminate answer choice (a) because if we increase the number of people cleaning the house, the time will decrease. The number of people cleaning the house is inversely related to the time it takes to clean the house. Therefore, if we triple the number of people, we need to divide the time by 3. First, change 2 hours into minutes: 2 • 60 = 120 minutes. Now divide 120 minutes by 3: 120 ÷ 3 = 40 minutes.

Probability Practice Set 1

1. **Answer choice (a) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 3 blue hats, so there are 3 favorable outcomes. There are 15 total hats, so there are 15 total outcomes. Therefore, the probability of choosing a blue hat is 3/15 which simplifies to 1/5.
2. **Answer choice (c) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 10 sections that are NOT red, so there are 10 favorable outcomes. There are 12 total sections, so there are 12 total outcomes.

Therefore, the probability of NOT landing on a red section equals 10/12 which simplifies to 5/6.

3. **Answer choice (b) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 14 dark and milk chocolates, so there are 14 favorable outcomes. There are 20 total chocolates, so there are 20 total outcomes. Therefore, the probability of choosing a dark or milk chocolate is 14/20 which simplifies to 7/10.

4. **Answer choice (b) is the correct answer.** If the probability of choosing a white ball is 4/7, then 4/7 of the balls are white. Since we cannot have a fraction of a ball, the total number of balls must be a multiple of 7. The only answer choice that is a multiple of 7 is 21.

5. **Answer choice (d) is the correct answer.** If the probability of hitting a blue section is $\frac{2}{9}$, then $\frac{2}{9}$ of the sections are blue. Find $\frac{2}{9}$ of 18: $\frac{2}{9}$ of 18 = $\frac{2}{9}$ • 18 = 4 blue sections.

6. **Answer choice (d) is the correct answer.** To find the probability of multiple events happening, multiply the probabilities of each event. The probability of rolling a standard die once and it landing on a number less than 3 is $\frac{2}{6}=\frac{1}{3}$. Therefore, the probability of rolling a die three times and landing on a number less than 3 each time equals $\frac{1}{3}\bullet\frac{1}{3}\bullet\frac{1}{3}=\frac{1}{27}$.

7. **Answer choice (b) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 8 marbles that are NOT pink or orange, so there are 8 favorable outcomes. There are 26 total marbles, so there are 26 total outcomes. Therefore, the probability of NOT choosing a pink or orange marble equals 8/26 which simplifies to 4/13.

8. **Answer choice (c) is the correct answer.** To find the probability of multiple events happening, multiply the probabilities of each event. The probability of flipping a coin and it landing on heads is $\frac{1}{2}$. Therefore, the probability of flipping a coin twice and it landing on heads each time equals $\frac{1}{2}\bullet\frac{1}{2}=\frac{1}{4}$.

9. **Answer choice (a) is the correct answer.** If the probability of choosing a purple pen from the basket is ⅜, then ⅜ of the pens in the basket are purple, and we know there are 6 purple pens. Therefore, we can set up and solve the following equation, using *x* to represent the total

number of pens: ⅗ • $x = 6 \rightarrow x = 10$ total pens. Find the number of black pens by subtracting the number of purple and red pens from the total number of pens: 10 – 6 – 3 = 1 black pen.

10. **Anser choice (b) is the correct answer.** The sum of the probabilities of choosing each letter must add up to 1. Therefore, the probability of choosing a C equals 1 – 0.15 – 0.45 = 0.4. Find the total number of papers labeled C by multiplying the probability of choosing a C by the total number of papers: 0.4 • 20 = 8 pieces of paper.

Probability Practice Set 2

1. **Answer choice (b) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 9 gray blocks, so there are 9 favorable outcomes. There are 21 total blocks, so there are 21 total outcomes. Therefore, the probability of choosing a gray block is 9/21 which simplifies to 3/7.

2. **Answer choice (c) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 8 stickers that are NOT silver or gold, so there are 8 favorable outcomes. There are 24 total stickers, so there are 24 total outcomes. Therefore, the probability of choosing a sticker that is NOT silver or gold is 8/24 which simplifies to 1/3.

3. **Answer choice (a) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 6 blueberry and cinnamon waffles, so there are 6 favorable outcomes. There are 10 total waffles, so there are 10 total outcomes. Therefore, the probability of choosing a blueberry or cinnamon waffle is 6/10 which simplifies to 3/5.

4. **Answer choice (d) is the correct answer.** To find the probability of multiple events happening, multiply the probabilities of each event. The probability of flipping a coin and it landing on tails is $\frac{1}{2}$. Therefore, the probability of flipping a coin three times and it landing on tails each time equals $\frac{1}{2} \bullet \frac{1}{2} \bullet \frac{1}{2} = \frac{1}{8}$.

5. **Answer choice (a) is the correct answer.** To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 10 sections that are NOT green, so there are 10 favorable outcomes. There are 15 total sections, so there are 15 total outcomes. Therefore, the probability of NOT hitting a green section is 10/15 which simplifies to 2/3.

6. **Answer choice (c) is the correct answer.** If the probability of choosing a brown pencil is 2/5, then 2/5 of the pencils are brown. Since we cannot have fractions of pencils, the total number of pencils must be a multiple of 5. The only answer that is a multiple of 5 is 15.

7. **Answer choice (c) is the correct answer.** If the probability of NOT landing on an orange section is ⅚, then the probability of landing on an orange section is ⅙. Therefore, ⅙ of the sections are orange. Find ⅙ of 12: ⅙ of 12 = ⅙ • 12 = 2 orange sections.

8. **Answer choice (b) is the correct answer.** To find the probability of multiple events happening, multiply the probabilities of each event. The probability of rolling a standard die once and it landing on a number no more than 4 is $\frac{4}{6}=\frac{2}{3}$, so the probability of rolling a die twice times and landing on a number no more than 4 each time equals $\frac{2}{3}\bullet\frac{2}{3}=\frac{4}{9}$.

9. **Answer choice (d) is the correct answer.** 0.25 as a fraction is ¼, so the probability of choosing a strawberry flavored candy is ¼. Therefore, ¼ of the candies in the bag are strawberry candies. We know that there are 12 strawberry candies, so we can set up and solve the following equation using x to represent the total pieces of candy: ¼ • x = 12 → x = 48 total candies. Subtract the number of strawberry candies from the total number of candies to find the number of other candies: 48 – 12 = 36 other candies.

10. **Answer choice (a) is the correct answer.** If the probability of choosing a black marble is 3/7, then 3/7 of the marbles are black, and we know that there are 9 black marbles. Therefore, we can set up and solve the following equation, using x to represent the total number of marbles: $\frac{3}{7}\bullet x = 9 \rightarrow x = 21$ total marbles. Find the number of yellow marbles by subtracting the number of black and white marbles from the total number of marbles: 21 – 9 – 5 = 7 yellow marbles.

Percents Practice Set 1

1. **Answer choice (b) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 50% into a decimal by moving the decimal point to the left twice to get 0.5. Therefore, 50% of 130 = 0.5 • 130 = 65.

2. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 10% into a decimal by moving the decimal point to the left twice to get 0.1. Therefore, 10% of 46 = 0.1 • 46 = 4.6.

3. **Answer choice (a) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 12% into a decimal by moving the decimal point to the left twice to get 0.12. Therefore, 12% of 150 = 0.12 • 150 = 18.

4. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 15% into a decimal by moving the decimal point to the left twice to get 0.15. Therefore, 15% of 30 = 0.15 • 30 = 4.5.

5. **Answer choice (d) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 160% into a decimal by moving the decimal point to the left twice to get 1.6. Therefore, 160% of 80 = 1.6 • 80 = 128.

6. **Answer choice (c) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $9 = x \cdot 45 \rightarrow x = 0.2$. Change 0.2 into a percent by moving the decimal point two places to the right to get 20%.

7. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $60 = x \cdot 30 \rightarrow x = 2$. Change 2 into a percent by moving the decimal point two places to the right to get 200%.

8. **Answer choice (a) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $18 = x \cdot 3600 \rightarrow x = 0.005$. Change 0.005 into a percent by moving the decimal point two places to the right to get 0.5%.

9. **Answer choice (d) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $36 = x \cdot 24 \rightarrow x = 1.5$. Change 1.5 into a percent by moving the decimal point two places to the right to get 150%.

10. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $21 = x \cdot 70 \rightarrow x = 0.3$. Change 0.3 into a percent by moving the decimal point two places to the right to get 30%.

11. **Answer choice (a) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 25% into a decimal by moving the decimal point two

places to the left to get 0.25. Now set up and solve the following equation, using x to represent the unknown number: $7 = 0.25 \bullet x \rightarrow x = 28$.

12. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 30% into a decimal by moving the decimal point two places to the left to get 0.3. Now set up and solve the following equation, using x to represent the unknown number: $30 = 0.3 \bullet x \rightarrow x = 100$.

13. **Answer choice (b) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 5% into a decimal by moving the decimal point two places to the left to get 0.05. Now set up and solve the following equation, using x to represent the unknown number: $9 = 0.05 \bullet x \rightarrow x = 180$.

14. **Answer choice (d) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 150% into a decimal by moving the decimal point two places to the left to get 1.5. Now set up and solve the following equation, using x to represent the unknown number: $30 = 1.5 \bullet x \rightarrow x = 20$.

15. **Answer choice (a) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 14% into a decimal by moving the decimal point two places to the left to get 0.14. Now set up and solve the following equation, using x to represent the unknown number: $28 = 0.14 \bullet x \rightarrow x = 200$.

16. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Find 20% of 400: 20% of 400 = 0.2 • 400 = 80. Find 10% of 80: 10% of 80 = 0.1 • 80 = 8.

17. **Answer choice (d) is the correct answer.** In math, *of* means multiply. Find 50% of 200: 50% of 200 = 0.5 • 200 = 100. Find 15% of 100: 15% of 100 = 0.15 • 100 = 15.

18. **Answer choice (a) is the correct answer.** In math, *of* means multiply. Find 25% of 240: 25% of 240 = 0.25 • 240 = 60. Find 30% of 60: 30% of 60 = 0.3 • 60 = 18.

19. **Answer choice (c) is the correct answer.** In math, *of* means multiply. Find 70% of 40: 70% of 40 = 0.7 • 40 = 28. Find 10% of 28: 10% of 28 = 0.1 • 28 = 2.8.

20. **Answer choice (d) is the correct answer.** In math, *of* means multiply. Find 75% of 8000: 75% of 8000 = 0.75 • 8000 = 6000. Find 1% of 6000: 1% of 6000 = 0.01 • 6000 = 60.

Percents Practice Set 2

1. **Answer choice (b) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 75% into a decimal by moving the decimal point to the left twice to get 0.75. Therefore, 75% of 48 = 0.75 • 48 = 36.

2. **Answer choice (a) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 110% into a decimal by moving the decimal point to the left twice to get 1.1. Therefore, 110% of 50 = 1.1 • 50 = 55.

3. **Answer choice (d) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 21% into a decimal by moving the decimal point to the left twice to get 0.21. Therefore, 21% of 300 = 0.21 • 300 = 63.

4. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 5% into a decimal by moving the decimal point to the left twice to get 0.05. Therefore, 5% of 70 = 0.05 • 70 = 3.5.

5. **Answer choice (b) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so we need to change 250% into a decimal by moving the decimal point to the left twice to get 2.5. Therefore, 250% of 16 = 2.5 • 16 = 40.

6. **Answer choice (a) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $24 = x \cdot 30 \rightarrow x = 0.8$. Change 0.8 into a percent by moving the decimal point two places to the right to get 80%.

7. **Answer choice (c) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $42 = x \cdot 14 \rightarrow x = 3$. Change 3 into a percent by moving the decimal point two places to the right to get 300%.

8. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $63 = x \cdot 6300 \rightarrow x = 0.01$. Change 0.01 into a percent by moving the decimal point two places to the right to get 1%.

9. **Answer choice (d) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $55 = x \cdot$

44 → $x = 1.25$. Change 1.25 into a percent by moving the decimal point two places to the right to get 125%.

10. **Answer choice (a) is the correct answer.** In math, *of* means multiply. Therefore, we can set up and solve the following equation, where x represents our percent in decimal form: $36 = x \cdot 48 \rightarrow x = 0.75$. Change 0.75 into a percent by moving the decimal point two places to the right to get 75%.

11. **Answer choice (b) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 15% into a decimal by moving the decimal point two places to the left to get 0.15. Now set up and solve the following equation, using x to represent the unknown number: $18 = 0.15 \cdot x \rightarrow x = 120$.

12. **Answer choice (a) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 70% into a decimal by moving the decimal point two places to the left to get 0.7. Now set up and solve the following equation, using x to represent the unknown number: $42 = 0.7 \cdot x \rightarrow x = 60$.

13. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 8% into a decimal by moving the decimal point two places to the left to get 0.08. Now set up and solve the following equation, using x to represent the unknown number: $40 = 0.08 \cdot x \rightarrow x = 500$.

14. **Answer choice (d) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 120% into a decimal by moving the decimal point two places to the left to get 1.2. Now set up and solve the following equation, using x to represent the unknown number: $90 = 1.2 \cdot x \rightarrow x = 74$.

15. **Answer choice (c) is the correct answer.** In math, *of* means multiply. We cannot put percentages into an equation, so change 1% into a decimal by moving the decimal point two places to the left to get 0.01. Now set up and solve the following equation, using x to represent the unknown number: $3.6 = 0.01 \cdot x \rightarrow x = 360$.

16. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Find 10% of 4800: 10% of 4800 = 0.1 • 4800 = 480. Find 5% of 480: 5% of 480 = 0.05 • 480 = 24.

17. **Answer choice (a) is the correct answer.** In math, *of* means multiply. Find 15% of 600: 15% of 600 = 0.15 • 600 = 90. Find 20% of 90: 20% of 90 = 0.2 • 90 = 18.

18. **Answer choice (b) is the correct answer.** In math, *of* means multiply. Find 50% of 720: 50% of 720 = 0.5 • 720 = 360. Find 75% of 360: 75% of 360 = 0.75 • 360 = 270.

19. **Answer choice (c) is the correct answer.** In math, *of* means multiply. Find 80% of 50: 80% of 50 = 0.8 • 50 = 40. Find 30% of 40: 30% of 40 = 0.3 • 40 = 12.

20. **Answer choice (d) is the correct answer.** In math, *of* means multiply. Find 1% of 12,000: 1% of 12,000 = 0.01 • 12,000 = 120. Find 60% of 120: 60% of 120 = 0.6 • 120 = 72.

Percent Word Problems Practice Set 1

1. **Answer choice (c) is the correct answer.** Find the sale price by subtracting 30% of $140 from $140: 140 – 0.3 • 140 = 140 – 42 = $98.

2. **Answer choice (c) is the correct answer.** To find percent increase, which is a specific type of percent change, divide the difference in the numbers by the starting number, and then multiply the result by 100. The difference between 10.5 and 3.5 is 7 → 7 divided by 3.5 is 2 → 2 times 100 equals 200%.
3. **Answer choice (a) is the correct answer.** Find 4% of 9000: 4% of 9000 = 0.04 • 9000 = $360.

4. **Answer choice (a) is the correct answer.** Find the number of 8th graders by subtracting the number of 6th and 7th graders from the total students: 480 – 360 = 120. Therefore 120 out of 480 students are 8th graders: $\frac{120}{480}=\frac{1}{4}$ = 25%.

5. **Answer choice (d) is the correct answer.** We want to answer the question, "120 square feet is 15% of what number?" where the number we are looking for is the amount of paint a full can covers. Therefore, set up and solve the following equation, using x to represent the number of square feet a full can covers: $120 = 0.15x \rightarrow x = 800$ square feet.

6. **Answer choice (a) is the correct answer.** Find the sale price by subtracting 40% of $200 from $200: 200 – 0.4 • 200 = 200 – 80 = $120. Add the tax by adding 8% of $120 to $120: 120 + 0.08 • 120 = 120 + 9.6 = $129.6.

7. **Answer choice (b) is the correct answer.** Find the total price of all five items: 5 • $1600 = $8000. Find the amount she made from commission by finding 12% of $8000: 12% of $8000 = 0.12 • 8000 = $960.

8. **Answer choice (b) is the correct answer.** To find percent decrease, which is a specific type of percent change, divide the difference in the numbers by the starting number, and then multiply the result by 100. The difference between 230 and 207 is 23 → 23 divided by 230 is 0.1 → 0.1 times 100 equals 10%.

9. **Answer choice (a) is the correct answer.** Find the amount of money the tax added by subtracting the price before tax from the price after tax: \$856 – \$800 = \$56. Find the tax rate by dividing the dollar amount of the tax by the original price: \$56 ÷ \$800 = 0.07. Change 0.07 into a percent by moving the decimal point twice to the right to get 7%.

10. **Answer choice (c) is the correct answer.** Find the commission rate by dividing the amount Henry made from commissions by the total value of the cars he sold: \$4000 ÷ \$32,000 = 0.125. Change 0.125 into a percent by moving the decimal point twice to the right to get 12.5%.

Percent Word Problems Practice Set 2

1. **Answer choice (b) is the correct answer.** Find the number of red marbles: 20 + 50% of 20 = 20 + 0.5 • 20 = 20 + 10 = 30 red marbles. Find the number of green marbles: 30 – 10% of 30 = 30 – 0.1 • 30 = 30 – 3 = 27 green marbles.
2. **Answer choice (d) is the correct answer.** Find the tax rate by dividing the dollar amount of the tax by the original cost of the sofa: \$22.50 ÷ \$450 = 0.05. Change 0.05 into a percent by moving the decimal point twice to the right to get 5%.

3. **Answer choice (b) is the correct answer.** To find percent decrease, which is a specific type of percent change, divide the difference in the numbers by the starting number, and then multiply the result by 100. The difference between 350,000 and 280,000 is 70,000 → 70,000 divided by 350,000 is 0.2 → 0.2 times 100 equals 20%.

4. **Answer choice (a) is the correct answer.** Find the total number of seashells: 5 + 15 + 30 = 50. Therefore, 30 out of 50 seashells are white: $\frac{30}{50} = \frac{3}{5}$ = 60%.

5. **Answer choice (c) is the correct answer.** We want to answer the question, "\$18 is 6% of what number?" where the number we are looking for is the cost of the television before tax. Set up and solve the following equation, using x as the cost of the television before tax: $18 = 0.06x \rightarrow x = \$300$.

6. **Answer choice (b) is the correct answer.** Find the amount of money the salesman makes from commission: 15% of \$20,000 = 0.15 • 20,000 = \$3,000. Add the money the salesman makes from commission to his monthly salary: \$3,000 + \$6,000 = \$9,000.

7. **Answer choice (c) is the correct answer.** At the end of the year, Tommy owes the $12,000 he borrowed plus 15% of the $12,000 he borrowed: 12,000 + 0.15 • 12,000 = 12,000 + 1,800 = $13,800.

8. **Answer choice (d) is the correct answer.** Find the total value of the seven makeup packages: $120 • 7 = $840. Find the commission rate by dividing the money Megan receives in commission by the value of the items she sold: $210 ÷ $840 = 0.25. Change 0.25 into a percent by moving the decimal two places to the right to get 25%.

9. **Answer choice (a) is the correct answer.** To find percent increase, which is a specific type of percent change, divide the difference in the numbers by the starting number, and then multiply the result by 100. The difference between 250 and 50 is 200 → 200 divided by 50 is 4 → 4 times 100 equals 400%.

10. **Answer choice (d) is the correct answer.** After taking 25% off, there is 75% left. Therefore, the sale price of $24 is 75% of the original price. Set up and solve the following equation, using x to represent the original price: $24 = 0.75x \rightarrow x = \$32$.

Exponents Practice Set 1

1. **Answer choice (a) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $3^2 = 3 \cdot 3 = 9$.
2. **Answer choice (c) is the correct answer.** 10 squared is the same as 10^2. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $10^2 = 10 \cdot 10 = 100$.

3. **Answer choice (c) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $4^3 = 4 \cdot 4 \cdot 4 = 64$.

4. **Answer choice (b) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $-9^2 = -(9^2) = -(9 \cdot 9) = -81$. (Remember that we do not raise the negative to the 2nd power because it is not in the parenthesis, so our answer ends up negative.)

5. **Answer choice (d) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $(-5)^2 = (-5) \cdot (-5) = 25$.

6. **Answer choice (a) is the correct answer.** 7 cubed is the same as 7^3. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $7^3 = 7 \bullet 7 \bullet 7 = 343$.

7. **Answer choice (b) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $(–6)^3 = (–6) \bullet (–6) \bullet (–6) = –216$.

8. **Answer choice (a) is the correct answer.** 2 to the fourth power is the same as 2^4. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $2^4 = 2 \bullet 2 \bullet 2 \bullet 2 = 16$.

9. **Answer choice (d) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $6^2 = 6 \bullet 6 = 36$, and $5^2 = 5 \bullet 5 = 25$. Therefore, $6^2 – 5^2 = 36 – 25 = 11$.

10. **Answer choice (c) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $2^2 = 2 \bullet 2 = 4$, and $2^5 = 2 \bullet 2 \bullet 2 \bullet 2 \bullet 2 = 32$. Therefore, $2^2 + 2^5 = 4 + 32 = 36$.

Exponents Practice Set 2

1. **Answer choice (c) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $8^2 = 8 \bullet 8 = 64$.

2. **Answer choice (a) is the correct answer.** 12 squared is the same as 12^2. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $12^2 = 12 \bullet 12 = 144$.

3. **Answer choice (c) is the correct answer.** Anything raised to the 0 power equals 1.

4. **Answer choice (a) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $–10^2 = –(10^2) = –(10 \bullet 10) = –100$. (Remember that we do not raise the negative to the 2nd power because it is not in the parenthesis, so our answer ends up negative.)

5. **Answer choice (d) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $(–4)^4 = (–4) \bullet (–4) \bullet (–4) \bullet (–4) = 256$.

6. **Answer choice (a) is the correct answer.** 5 cubed is the same as 5^3. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $5^3 = 5 \cdot 5 \cdot 5 = 125$.

7. **Answer choice (b) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $-8^3 = -(8^3) = -(8 \cdot 8 \cdot 8) = -512$.

8. **Answer choice (c) is the correct answer.** –1 to the fifth power is the same as $(-1)^5$. The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $(-1)^5 = (-1) \cdot (-1) \cdot (-1) \cdot (-1) \cdot (-1) = -1$.

9. **Answer choice (d) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $3^3 = 3 \cdot 3 \cdot 3 = 27$, and $2^3 = 2 \cdot 2 \cdot 2 = 8$. Therefore, $3^3 + 2^3 = 27 + 8 = 35$.

10. **Answer choice (d) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $2^6 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 64$, and $2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$. Therefore, $2^6 - 2^4 = 64 - 16 = 48$.

Scientific Notation Practice Set 1

1. **Answer choice (a) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 50,000 in scientific notation, change it into a decimal that is in between 1 and 10: 50,000 becomes 5. To get from 5 to 50,000, we need to move the decimal point 4 times to the right. Therefore, we can write 50,000 as 5×10^4.

2. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 0.007 in scientific notation, change it into a decimal that is in between 1 and 10: 0.007 becomes 7. To get from 7 to 0.007, we need to move the decimal point 3 times to the left. Therefore, we can write 0.007 as 7×10^{-3}.

3. **Answer choice (c) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative

means move to the left. To write 432 in scientific notation, change it into a decimal that is in between 1 and 10: 432 becomes 4.32. To get from 4.32 to 432, we need to move the decimal point 2 times to the right. Therefore, we can write 432 as 4.32×10^2.

4. **Answer choice (d) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 0.0542 in scientific notation, change it into a decimal that is in between 1 and 10: 0.0542 becomes 5.42. To get from 5.42 to 0.0542, we need to move the decimal point 2 times to the left. Therefore, we can write 0.0542 as 5.42×10^{-2}.

5. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 345.27 in scientific notation, change it into a decimal that is between 1 and 10: 345.27 becomes 3.4527. To get from 3.4527 to 345.27, we need to move the decimal point 2 times to the right. Therefore, we can write 345.27 as 3.4527×10^2.

6. **Answer choice (d) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 3×10^4 in standard form, move the decimal point 4 times to the right: $3 \times 10^4 = 30{,}000$.

7. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 9×10^{-5} in standard form, move the decimal point 5 times to the left: $9 \times 10^{-5} = 0.00009$.

8. **Answer choice (a) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 8.092×10^2 in standard form, move the decimal point 2 times to the right: $8.092 \times 10^2 = 809.2$.

9. **Answer choice (c) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative

means move to the left. Therefore, to write 7.21×10^{-2} in standard form, move the decimal point 2 times to the left: $7.21 \times 10^{-2} = 0.0721$.

10. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 4.3×10^{-1} in standard form, move the decimal point 1 time to the left: $4.3 \times 10^{-1} = 0.43$.

Scientific Notation Practice Set 2

1. **Answer choice (a) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 4,000 in scientific notation, change it into a decimal that is in between 1 and 10: 4,000 becomes 4. To get from 4 to 4,000, we need to move the decimal point 3 times to the right. Therefore, we can write 4,000 as 4×10^{3}.

2. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 0.00008 in scientific notation, change it into a decimal that is in between 1 and 10: 0.00008 becomes 8. To get from 8 to 0.00008, we need to move the decimal point 5 times to the left. Therefore, we can write 0.00008 as 8×10^{-5}.

3. **Answer choice (a) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 12,027 in scientific notation, change it into a decimal that is between 1 and 10: 12,027 becomes 1.2027. To get from 1.2027 to 12,027, we need to move the decimal point 4 times to the right. Therefore, we can write 12,027 as 1.2027×10^{4}.

4. **Answer choice (c) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 0.951 in scientific notation, change it into a decimal that is in between 1 and 10: 0.951 becomes 9.51. To get from 9.51 to 0.951, we need to move the decimal point 1 time to the left. Therefore, we can write 0.951 as 9.51×10^{-1}.

5. **Answer choice (d) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 23.62 in scientific notation, change it into a decimal that is between 1 and 10: 23.62 becomes 2.362. To get from 2.362 to 23.62, we need to move the decimal point 1 time to the right. Therefore, we can write 23.62 as 2.362×10^1.

6. **Answer choice (a) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 2×10^3 in standard form, move the decimal point 3 times to the right: $2 \times 10^3 = 2{,}000$.

7. **Answer choice (d) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 7×10^{-6} in standard form, move the decimal point 6 times to the left: $7 \times 10^{-6} = 0.000007$.

8. **Answer choice (b) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 1.7267×10^1 in standard form, move the decimal point 1 time to the right: $1.7267 \times 10^1 = 17.267$.

9. **Answer choice (d) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 3.052×10^{-4} in standard form, move the decimal point 4 times to the left: $3.052 \times 10^{-4} = 0.0003052$.

10. **Answer choice (c) is the correct answer.** A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. Therefore, to write 9.9×10^{-2} in standard form, move the decimal point 2 times to the left: $9.9 \times 10^{-2} = 0.099$.

Roots Practice Set 1

1. **Answer choice (c) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $3^2 = 9$, so $\sqrt{9} = 3$,

2. **Answer choice (a) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $8^2 = 64$, so the square root of 64 = 8.

3. **Answer choice (a) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $6^2 = 36$, so $\sqrt{36} = 6$.

4. **Answer choice (b) is the correct answer.** $\sqrt{16}<\sqrt{21}<\sqrt{25}$. $\sqrt{16} = 4$, and $\sqrt{25} = 5$. Therefore, $4 <\sqrt{21}< 5$.

5. **Answer choice (c) is the correct answer.** Perform the subtraction first: $\sqrt{169 - 144} = \sqrt{25}$. The square root of a quantity is the number that produces that quantity when squared: $5^2 = 25$, so $\sqrt{25} = 5$.

6. **Answer choice (d) is the correct answer.** $\sqrt{81}<\sqrt{90}<\sqrt{100}$. $\sqrt{81} = 9$, and $\sqrt{100} = 10$. Therefore, $9 <\sqrt{90}< 10$.

7. **Answer choice (b) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $6^2 = 36$, so $\sqrt{36} = 6$; $8^2 = 64$, so $\sqrt{64} = 8$. Therefore, $\sqrt{36} + \sqrt{64} = 6 + 8 = 14$.

8. **Answer choice (d) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $4^2 = 16$, so $\sqrt{16} = 4$; $7^2 = 49$, so $\sqrt{49} = 7$. Therefore, $\frac{\sqrt{16}}{\sqrt{49}} = \frac{4}{7}$.

9. **Answer choice (a) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $11^2 = 121$, so $\sqrt{121} = 11$. Therefore, $3\sqrt{121} = 3 \bullet 11 = 33$.

10. **Answer choice (c) is the correct answer.** $\sqrt{\frac{9}{64}} = \frac{\sqrt{9}}{\sqrt{64}}$. The square root of a quantity is the number that produces that quantity when squared: $3^2 = 9$, so $\sqrt{9} = 3$; $8^2 = 64$, so $\sqrt{64} = 8$. Therefore, $\frac{\sqrt{9}}{\sqrt{64}} = \frac{3}{8}$.

Roots Practice Set 2

1. **Answer choice (c) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $7^2 = 49$, so the square root of 49 = 7.

2. **Answer choice (d) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $4^2 = 16$, so $\sqrt{16} = 4$.

3. **Answer choice (d) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $15^2 = 225$, so $\sqrt{225} = 15$.

4. **Answer choice (b) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $10^2 = 100$, so $\sqrt{100} = 10$; $6^2 = 36$, so $\sqrt{36} = 6$. Therefore, $\sqrt{100} - \sqrt{36} = 10 - 6 = 4$.

5. **Answer choice (a) is the correct answer.** $\sqrt{49} < \sqrt{56} < \sqrt{64}$. $\sqrt{49} = 7$, and $\sqrt{64} = 8$. Therefore, $7 < \sqrt{56} < 8$.

6. **Answer choice (b) is the correct answer.** Perform the addition first: $\sqrt{9 + 25} = \sqrt{34}$. We cannot simplify the square root of 34.

7. **Answer choice (a) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $5^2 = 25$, so $\sqrt{25} = 5$; $6^2 = 36$, so $\sqrt{36} = 6$. Therefore, $\frac{\sqrt{25}}{\sqrt{36}} = \frac{5}{6}$.

8. **Answer choice (d) is the correct answer.** $\sqrt{4} < \sqrt{7} < \sqrt{9}$. $\sqrt{4} = 2$, and $\sqrt{9} = 3$. Therefore, $2 < \sqrt{7} < 3$.

9. **Answer choice (c) is the correct answer.** $\sqrt{\frac{81}{4}} = \frac{\sqrt{81}}{\sqrt{4}}$. The square root of a quantity is the number that produces that quantity when squared: $9^2 = 81$, so $\sqrt{81} = 9$; $2^2 = 4$, so $\sqrt{4} = 2$. Therefore, $\frac{\sqrt{81}}{\sqrt{4}} = \frac{9}{2}$.

10. **Answer choice (c) is the correct answer.** The square root of a quantity is the number that produces that quantity when squared: $13^2 = 169$, so $\sqrt{169} = 13$. Therefore, $2\sqrt{169} = 2 \bullet 13 = 26$.

Algebra Practice Set 1

1. **Answer choice (a) is the correct answer.** Add 8 to both sides of the equation to get $x = 18$.

2. **Answer choice (c) is the correct answer.** Divide both sides of the equation by 2 to get $a + 5 = 18$, then subtract 5 from both sides to get $a = 13$.

3. **Answer choice (d) is the correct answer.** Subtract 24 from both sides of the equation to get $-2x = -38$, then divide both sides by –2 to get $x = 19$.

4. **Answer choice (a) is the correct answer.** Subtract $2b$ from both sides of the equation to get $7 = 3b + 28$. Subtract 28 from both sides to get $-21 = 3b$. Divide both sides by 3 to get $b = -7$.

5. **Answer choice (b) is the correct answer.** Subtract 7 from both sides of the inequality to get $-4x \geq 20$. Divide both sides by –4, remember to flip the inequality, to get $x \leq -5$.

6. **Answer choice (b) is the correct answer.** Subtract x from both sides of the inequality to get $11 < x + 5$, then subtract 5 from both sides to get $6 < x$ which is the same as $x > 6$.

7. **Answer choice (c) is the correct answer.** Solve the inequality by subtracting 4 from both sides to get $-3x > 6$. Divide both sides by –3, remembering to flip the inequality sign, to get $x < -2$. –3 is the only answer choice that is less than –2.

8. **Answer choice (a) is the correct answer.** If you plug 1 in for x and 14 in for y in the given inequality, it is true: $y > 3x + 8 \rightarrow 14 > 3(1) + 8 \rightarrow 14 > 3 + 8 \rightarrow 14 > 11$.

9. **Answer choice (d) is the correct answer.** Plug in 4 for x and solve for y: $y = 6(4) + 1.5 \rightarrow y = 24 + 1.5 \rightarrow y = 25.5$.

10. **Answer choice (b) is the correct answer.** Plug in –8 for y and solve for x: $-8 = 10 - 3x \rightarrow -18 = -3x \rightarrow x = 6$.

Algebra Practice Set 2

1. **Answer choice (d) is the correct answer.** Subtract 7 from both sides of the equation to get $x = -3$.

2. **Answer choice (b) is the correct answer.** Divide both sides of the equation by 4 to get $y - 3 = 5$, then add 3 to both sides to get $y = 8$.

3. **Answer choice (a) is the correct answer.** Add 5 to both sides of the equation to get $-2x = 18$, then divide both sides by –2 to get $x = -9$.

4. **Answer choice (a) is the correct answer.** Subtract k from both sides of the equation to get $3k - 3 = 21$. Add 3 to both sides to get $3k = 24$. Divide both sides by 3 to get $k = 8$.

5. **Answer choice (c) is the correct answer.** Subtract 10 from both sides of the inequality to get $-x < 23$. Divide both sides by –1, remember to flip the inequality sign, to get $x > -23$.

6. **Answer choice (d) is the correct answer.** Subtract x from both sides of the inequality to get $x + 4 \leq -9$, and then subtract 4 from both sides to get $x \leq -13$.

7. **Answer choice (d) is the correct answer.** Solve the inequality by subtracting x from both sides to get $2 \geq 2x$, then divide both sides by 2 to get $1 \geq x$. 1 is the only answer choice that is less than or equal to 1.
8. **Answer choice (c) is the correct answer.** If you plug –1 in for x and 9 in for y in the given inequality, it is true: $y \leq 10 - 5x \rightarrow 9 \leq 10 - 5(-1) \rightarrow 9 \leq 10 + 5 \rightarrow 9 \leq 15$.

9. **Answer choice (a) is the correct answer.** Plug in 10 for x and solve for y: $y = 2.5(10) + 3 \rightarrow y = 25 + 3 \rightarrow y = 28$.

10. **Answer choice (b) is the correct answer.** Plug in 5 for y and solve for x: $5 = 4x - 9 \rightarrow 14 = 4x \rightarrow x = 3.5$.

Linear Functions Practice Set 1

1. **Answer choice (d) is the correct answer.** The equation is written in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Therefore, the slope is –3.

2. **Answer choice (a) is the correct answer.** The equation is written in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Therefore, the y intercept is –2. The y-intercept is the y-coordinate when $x = 0$, so the point is (0, –2).

3. **Answer choice (b) is the correct answer.** The x-intercept is where the graph crosses the x-axis. The y-coordinate of any x-intercept is 0, so plug 0 in for y and solve for x: $5x + 3(0) = 45 \rightarrow 5x = 45 \rightarrow x = 9$. The x-intercept is 9, so the point is (9, 0)

4. **Answer choice (c) is the correct answer.** Plug in each point and see which one makes the equation true. If you plug 6 in for x and 5 in for y, the equation is true: $5 = \frac{2}{3}(6) + 1 \rightarrow 5 = 4 + 1 \rightarrow 5 = 5$.

5. **Answer choice (d) is the correct answer.** The slopes of perpendicular lines are opposite reciprocals (example: $\frac{2}{3}$ and $-\frac{3}{2}$). The given equation is in the form $y = mx + b$, where m represents the slope and b represents the y-intercept, so the slope is –5. The opposite reciprocal of –5 is $\frac{1}{5}$. Answer choice (d) is the only answer choice with a slope of $\frac{1}{5}$.

6. **Answer choice (a) is the correct answer.** Parallel lines have the same slope. The given equation is in the form $y = mx + b$, where m represents the slope and b represents the y-intercept, so the slope is –6. Answer choice (a) is the only answer choice with a slope of –6.

7. **Answer choice (c) is the correct answer.** To find where the lines intersect, set them equal to each other and solve for x: $x + 4 = -2x - 8 \rightarrow 3x + 4 = -8 \rightarrow 3x = -12 \rightarrow x = -4$. Answer choice (c) is the only answer choice with a x-coordinate of –4. If you want to solve for the y-coordinate, plug in –4 for x in either equation and solve for y (we'll use the first equation): $y = -4 + 4 = 0$. Therefore, the point of intersection is (–4, 0).

8. **Answer choice (b) is the correct answer.** To find where the lines intersect, set them equal to each other and solve for x: $\frac{2}{3}x = -\frac{1}{3}x + 2 \rightarrow x = 2$. Plug in 2 for x in either equation and

solve for y (we'll use the first equation): $y = \frac{2}{3}(2) \rightarrow y = \frac{4}{3}$. Therefore, the point of intersection is $(2, \frac{4}{3})$.

9. **Answer choice (b) is the correct answer.** The slope of a line is equal to the change in y divided by the change in x: $slope = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{0 - 1} = \frac{4}{-1} = -4$.

10. **Answer choice (a) is the correct answer.** The slope of the line is 2 because the slope equals the change in y divided by the change in x. The y-intercept is 1 because the y-intercept is where the graph crosses the y-axis. Write the equation in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Plug in 2 for m and 1 for b to get $y = 2x + 1$.

Linear Functions Practice Set 2

1. **Answer choice (d) is the correct answer.** The x-intercept is where the graph crosses the x-axis. The y-coordinate of any x-intercept is 0, so plug 0 in for y and solve for x: $0 = 4x + 20 \rightarrow -20 = 4x \rightarrow x = -5$. The x-intercept is –5, so the point is (–5, 0).

2. **Answer choice (a) is the correct answer.** The y-intercept is where the graph crosses the y-axis. The x-coordinate of any y-intercept is 0, so plug 0 in for x and solve for y: $2(0) - 6y = 18 \rightarrow -6y = 18 \rightarrow y = -3$. The y-intercept is –3, so the point is (0, –3).

3. **Answer choice (b) is the correct answer.** The equation is written in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Therefore, the slope is 7.

4. **Answer choice (c) is the correct answer.** Parallel lines have the same slope. The given equation is in the form $y = mx + b$, where m represents the slope and b represents the y-intercept, so the slope is 5. Answer choice (c) is the only answer choice with a slope of 5.

5. **Answer choice (d) is the correct answer.** The slopes of perpendicular lines are opposite reciprocals (example: $\frac{2}{3}$ and $-\frac{3}{2}$). The given equation is in the form $y = mx + b$, where m represents the slope and b represents the y-intercept, so the slope is $\frac{5}{3}$. The opposite reciprocal of $\frac{5}{3}$ is $-\frac{3}{5}$. Answer choice (d) is the only answer choice with a slope of $-\frac{3}{5}$.

6. **Answer choice (b) is the correct answer.** Plug in each point and see which one makes the equation true. If you plug 2 in for x and –4 in for y, the equation is true: $–4 = –7(2) + 10 \rightarrow –4 = –14 + 10 \rightarrow –4 = –4$.

7. **Answer choice (a) is the correct answer.** The slope of a line is equal to the change in y divided by the change in x: $slope = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 1}{-2 - (-4)} = \frac{6}{2} = 3$.

8. **Answer choice (c) is the correct answer.** To find where the lines intersect, set them equal to each other and solve for x: $2x + 8 = x + 5 \rightarrow x + 8 = 5 \rightarrow x = –3$. Answer choice (c) is the only answer choice with a x-coordinate of –3. If you want to solve for the y-coordinate, plug in –3 for x in either equation and solve for y (we'll use the second equation): $y = –3 + 5 \rightarrow y = 2$. Therefore, the point of intersection is (–3, 2).

9. **Answer choice (d) is the correct answer.** To find where the lines intersect, set them equal to each other and solve for x: $\frac{4}{5}x + 1 = –\frac{6}{5}x + 3 \rightarrow 2x + 1 = 3 \rightarrow 2x = 2 \rightarrow x = 1$. Plug in 1 for x in either equation and solve for y (we'll use the first equation): $y = \frac{4}{5}(1) + 1 \rightarrow y = \frac{9}{5}$. Therefore, the point of intersection is $(1, \frac{9}{5})$.

10. **Answer choice (c) is the correct answer.** The slope of the line is $–\frac{1}{3}$ because the slope equals the change in y divided by the change in x. The y-intercept is 2 because the y-intercept is where the graph crosses the y-axis. Write the equation in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Plug in $–\frac{1}{3}$ for m and 2 for b to get $y = –\frac{1}{3}x + 2$.

Absolute Value Practice Set 1

1. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|6| + |–6| = 6 + 6 = 12$.

2. **Answer choice (b) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|3| – |–7| = 3 – 7 = –4$.

3. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Perform the operations inside of the absolute value before taking the absolute value: $| 5 – 8 + 4| = |1| = 1$.

4. **Answer choice (b) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Perform the operations inside of the absolute value before taking the absolute value: $|3 – 10| + 18 = |–7| + 18 = 7 + 18 = 25$.

5. **Answer choice (d) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|3 – 5| = |–2| = 2$, and $|5 – 3| = |2| = 2$.

6. **Answer choice (b) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|7 – 6| = |1| = 1$, and $|7 + 6| = |13| = 13$, so they are not equal.

7. **Answer choice (d) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Isolate the absolute value by subtracting 8 from both sides to get $|x| = –8$ .The absolute value of a number can never be negative, so there is no value of x that makes the equation true.

8. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Isolate the absolute value by subtracting 10 from both sides to get $–|x| = –7$, then divide both sides by –1 to get $|x| = 7$. $|7| = 7$ and $|–7| = 7$, so x can equal 7 or –7.

9. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. If you plug in –2 for x, the equation is true: $|–2 – 4| = |–6| = 6$.

10. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is positive. If you plug in –3 for x, the equation is true: $2 + 3|–3| = 11 \rightarrow 2 + 3(3) = 11 \rightarrow 2 + 9 = 11 \rightarrow 11 = 11$.

Absolute Value Practice Set 2

1. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|–5| – |10| = 5 – 10 = –5$.

2. **Answer choice (d) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|–9| – |9| = 9 – 9 = 0$.

3. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Perform the operations inside of the absolute value before taking the absolute value: $20 – |6 – 7| = 20 – |–1| = 20 – 1 = 19$.

4. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Perform the operations inside of the absolute value before taking the absolute value: $|15 – 13 – 4| = |–2| = 2$.

5. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $–2 \times |–6| = –2 \times 6 = –12$, so answer choice (c) is false.

6. **Answer choice (b) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, $|–10| = 10$, and $|–12| = 12$, so $|–10| < |–12|$.

7. **Answer choice (d) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Isolate the absolute value by dividing both sides by 2 to get $|x| = –5$ .The absolute value of a number can never be negative, so there is no value of x that makes the equation true.

8. **Answer choice (c) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Isolate the absolute value by subtracting 18 from both sides to get $|x| = 5$. $|5| = 5$ and $|–5| = 5$, so x can equal 5 or –5.

9. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. If you plug in 9 for x, the equation is true: $|2 - 9| = |-7| = 7$.

10. **Answer choice (a) is the correct answer.** The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. If you plug in –10 for x, the equation is true: $2 - |-10| = -8 \rightarrow 2 - 10 = -8 \rightarrow -8 = -8$.

General Vocabulary Practice Set 1

1. **Answer choice (c) is the correct answer.** Integers are whole numbers, their negative counterparts, and 0. Decimals are NOT integers, so 3.25 is NOT an integer.

2. **Answer choice (a) is the correct answer.** The numerator is the top of a fraction.

3. **Answer choice (a) is the correct answer.** A rational number is any number that can be written as a simple fraction. Rational numbers include whole numbers, integers, fractions, terminating decimals, and repeating decimals. Since 6 is not a perfect square, it does not have a nice square root:$\sqrt{6}$ is a never ending, non-repeating decimal. Therefore, it is NOT rational.

4. **Answer choice (d) is the correct answer.** An irrational number is any number that cannot be written as a simple fraction. Irrational numbers include π and "ugly" roots: roots that have an answer that is a decimal that goes on forever without repeating.$\sqrt{16} = 4$, but $\sqrt{3}$ is not a perfect square, so it equals a decimal that goes on forever without repeating. Therefore, $\frac{\sqrt{16}}{\sqrt{3}}$ is irrational.

5. **Answer choice (a) is the correct answer.** The commutative property states that the order in which we add numbers or multiply numbers does not matter.

6. **Answer choice (b) is the correct answer.** The denominator of a fraction is the number on the bottom. The denominators of both fractions in choice (b) are 7.

7. **Answer choice (c) is the correct answer.** A prime number is a number that is only divisible by 1 and itself. Remember that 1 and 0 are neither prime nor composite.

8. **Answer choice (d) is the correct answer.** A reciprocal of a number is the result of dividing 1 by the number. You can find the reciprocal by flipping the number upside down.

9. **Answer choice (b) is the correct answer.** The distributive property states that multiplying the sum of two or more numbers by a number will give the same result as multiplying each number individually by the number and then adding the products together. It also states that multiplying the difference of two or more numbers will give the same result as multiplying each number individually and then finding the difference of the products (the order matters).

10. **Answer choice (c) is the correct answer.** Consecutive numbers are numbers that are one after the other; they follow each other in order, with no gaps, from smallest to largest.

General Vocabulary Practice Set 2

1. **Answer choice (b) is the correct answer.** The numerator of a fraction is the top number. The numerators of the fractions in choice (b) are both 7.

2. **Answer choice (c) is the correct answer.** Integers are whole numbers, their negative counterparts, and 0.

3. **Answer choice (b) is the correct answer.** The associative property states that the way the numbers are grouped (put into parenthesis) in an addition or multiplication problem does not change the answer.

4. **Answer choice (d) is the correct answer.** An irrational number is any number that cannot be written as a simple fraction. Irrational numbers include π and "ugly" roots: roots that have an answer that is a decimal that goes on forever without repeating. Since answer choice (d) is a repeating decimal, it is NOT irrational.

5. **Answer choice (c) is the correct answer.** The denominator of a fraction is the number on the bottom.

6. **Answer choice (d) is the correct answer.** A rational number is any number that can be written as a simple fraction. Rational numbers include whole numbers, integers, fraction, terminating decimals, and repeating decimals. $\sqrt{50}\times\sqrt{2} = \sqrt{100} = 10$ which is a rational number.

7. **Answer choice (b) is the correct answer.** Consecutive numbers are numbers that are one after the other; they follow each other in order, with no gaps, from smallest to largest. Consecutive odd numbers are odd numbers that are one after the other; they go up by 2 each time.

8. **Answer choice (a) is the correct answer.** A reciprocal of a number is the result of dividing 1 by the number. You can find the reciprocal by flipping the number upside down.

9. **Answer choice (c) is the correct answer.** The commutative property of addition of states that the order in which we add numbers does not matter.

10. **Answer choice (a) is the correct answer.** A prime number is a number that is only divisible by 1 and itself. Remember that 1 and 0 are neither prime nor composite.

Points, Lines, and Angles Practice Set 1

1. **Answer choice (d) is the correct answer.** A ray is a part of a line with a fixed starting point but no endpoint. Name a ray by putting the starting point first, and any other point the ray passes through second. Therefore, this ray is Ray AB because A is the starting point.

2. **Answer choice (b) is the correct answer.** The vertex of an angle is the point connecting the two rays or segments that make up the angle.

3. **Answer choice (b) is the correct answer.** Any exterior angle of a triangle is equal to the sum of the two opposite interior angles. Therefore, $x = 113° + 35° = 148°$.

4. **Answer choice (c) is the correct answer.** Since ABC is a right angle, it has a measure of 90°. Therefore, angle DBC + angle ABD = 90°, so 35° + ABD = 90°, so ABD = 55°.

5. **Answer choice (a) is the correct answer.** The top and bottom lines of the trapezoid are parallel because if they were extended, they would never touch.

6. **Answer choice (c) is the correct answer.** When a point is reflected over the *y*-axis, the *y*-coordinate stays the same and the *x-coordinate* changes sign. Therefore, (4, 1) becomes (–4, 1).

7. **Answer choice (c) is the correct answer.** Vertical angles are the angles opposite of each other when two lines cross.

8. **Answer choice (a) is the correct answer.** Since lines *l* and *m* are parallel, the angle labeled $b°$ is supplementary (adds to 180°) with the angle labeled 40°. Therefore, $b° + 40° = 180°$, so $b = 140°$.

9. **Answer choice (b) is the correct answer.** Since Y is the midpoint of XZ, XY = XZ. Set the expressions for each segment equal and solve for x: $2x - 4 = x + 8 \rightarrow x - 4 = 8 \rightarrow x = 12$. XZ = XY + YZ, so XZ = $2x - 4 + x + 8$. Plug in 12 for x and solve for the length of XZ: XZ = $2(12) - 4 + 12 + 8 \rightarrow$ XZ = $24 - 4 + 12 + 8 \rightarrow$ XZ = 40.

10. **Answer choice (c) is the correct answer.** We have the new coordinates of point K after moving it 2 units down and 3 units right, so to find the starting point, we need to move 2 units up and 3 units left. Move 2 units up by adding 2 to the y-coordinate to get (–6, 3). Move 3 units left by subtracting 3 from the x-coordinate to get (–9, 3).

Points, Lines, and Angles Practice Set 2

1. **Answer choice (d) is the correct answer.** An angle can be named by its vertex or by the three letters, putting the vertex in the middle. Therefore, the angle can be named Angle B, Angle ABC, or Angle CBA.

2. **Answer choice (b) is the correct answer.** A line does not have any endpoints: it goes on infinitely in both directions. Therefore, the figure is a line, and only answer choice (b) is named a line.

3. **Answer choice (a) is the correct answer.** When reflecting a point over the x-axis, the x-coordinate stays the same and the *y-coordinate* changes sign. Therefore, (5, –7) becomes (5, 7).

4. **Answer choice (a) is the correct answer.** Since angles JKM and MKL form a straight line, they add up to 180°. Therefore, JKM + MKL = 180°, so 50° + MKL = 180° and MKL = 130°.

5. **Answer choice (b) is the correct answer.** Vertical angles are the angles opposite of each other when two lines cross. Vertical angles are congruent, so set the expressions for the two angles equal and solve for x: $132 - x = 3x + 12 \rightarrow 132 = 4x + 12 \rightarrow 120 = 4x \rightarrow x = 30$.

6. **Answer choice (c) is the correct answer.** We have the new coordinates of point E after moving it 1 unit up and 4 units left, so to find the starting point, we need to move 1 unit down and 4 units right. Move 1 unit down by subtracting 1 from the y-coordinate to get (2, –6). Move 4 units right by adding 4 to the x-coordinate to get (6, –6).

7. **Answer choice (d) is the correct answer.** Parallel lines are lines that never touch. Therefore, there are two pairs of parallel lines: the top and bottom lines and the left and right lines. Perpendicular lines are lines that form a right angle. Therefore, there are four pairs of

perpendicular lines: the top and right lines, the top and left lines, the bottom and right lines, and the bottom and left lines. Therefore, there are more pairs of perpendicular lines than pairs of parallel lines.

8. **Answer choice (d) is the correct answer.** Collinear points are points that are on the same line. L, M, and N are all on the same line.

9. **Answer choice (b) is the correct answer.** Because lines *l* and *m* are parallel, the angles labeled $y°$ and $x°$ are congruent because they are corresponding angles. Therefore $x = y$, so the difference between them is 0.

10. **Answer choice (c) is the correct answer.** Bisect means cut in half, so ray BD cuts angle ABC in half. Therefore, angle ABC is twice angle ABD, so angle ABC has a measure of $2 \cdot 53° = 106°$.

Area and Perimeter Practice Set 1

1. **Answer choice (c) is the correct answer.** The equation for the area of a square is $A = s^2$, where *s* equals the side length of the square. Therefore, the side length of a square with an area of 36 in^2 is 6 because $6^2 = 36$. Find the perimeter by multiplying the side length by 4: $6 \cdot 4 = 24$ inches.

2. **Answer choice (a) is the correct answer.** The equation for the perimeter of a rectangle is $P = 2l + 2w$, where *l* is the length and *w* is the width. Plug in 24 for the perimeter and 8 for the length and solve for the width: $24 = 2(8) + 2w \rightarrow 24 = 16 + 2w \rightarrow 8 = 2w \rightarrow w = 4$. The equation for the area of a rectangle is $A = lw$, so the area equals $4 \cdot 8 = 32$ cm^2.

3. **Answer choice (d) is the correct answer.** The equation for the area of a triangle is $A = (bh) \div 2$, where *b* is the base and *h* is the height. Therefore, the area of this triangle equals $(5 \cdot 7) \div 2 = 35 \div 2 = 17.5$ ft^2.

4. **Answer choice (a) is the correct answer.** Change the width into feet: 12 in = 1 ft.The perimeter is equal to the sum of all four sides: 1 + 1 + 10 + 10 = 22 ft.

5. **Answer choice (c) is the correct answer.** The equation for the area of a square is $A = s^2$, where *s* equals the side length of the square. Therefore, the side length of a square with an area of 16 in^2 is 4 because $4^2 = 16$. If we double the side lengths, the side length is 8. Therefore, the area equals $8^2 = 64$ in^2.

6. **Answer choice (c) is the correct answer.** The sum of the two top horizontal segments equals the sum of the two bottom horizontal segments. The sum of the top two horizontal segments is 11 m, so the sum of the bottom two horizontal segments is also 11 m. The sum of the two left vertical segments equals the sum of the two right vertical segments. The sum of the two left vertical segments is 12 m, so the sum of the two right vertical segments is also 12 m. The perimeter is the sum of all of the sides, so the perimeter equals 11 + 11 + 12 + 12 = 46 m.

7. **Answer choice (b) is the correct answer.** The area of the entire figure equals the area of the semicircle plus the area of the triangle. The formula for the area of a circle is $A = \pi r^2$, so the formula for the area of a semicircle is $A = (\pi r^2) \div 2$. The diameter of the given circle is 8 in, so the radius is 4 in. Therefore, the area is $(\pi \bullet 4^2) \div 2 = 16\pi \div 2 = 8\pi$ in^2. The formula for the area of a triangle is $A = (bh) \div 2$, where b is the base and h is the height. The base of the triangle equals the diameter of the circle which is 8 in. Therefore, the area of this triangle equals $(8 \bullet 7) \div 2 = 56 \div 2 = 28$ in^2. Therefore, the area of the entire figure is $28 + 8\pi$ in^2.

8. **Answer choice (d) is the correct answer.** The equation for the perimeter of a rectangle is $P = 2l + 2w$, where l is the length and w is the width. Since we want to find the longest possible side, set the width equal to 1 and the perimeter equal to 12, and solve for the length: $12 = 2l + 2(1) \rightarrow 12 = 2l + 2 \rightarrow 10 = 2l \rightarrow l = 5$ mm.

9. **Answer choice (b) is the correct answer.** Find the shaded area by subtracting the area of the white circle from the area of the outer square. The formula for the area of a circle is $A = \pi r^2$, so the area of the circle equals $\pi \bullet 3^2 = 9\pi$. The formula for the area of a square is $A = s^2$, where s is the side length of the square. The side length of this square equals the diameter of the circle which is 6 in, so the area of the square equals $6^2 = 36$ in. Therefore, the shaded area is $36 - 9\pi$ in^2.

10. **Answer choice (b) is the correct answer.** Change the dimensions of the wall to yards because we know that one can of paint covers 10 square yards. 18 ft = 6 yds, and 15 ft = 5 yds. Find the area of the wall by multiplying the dimensions: $A = 6 \bullet 5 = 30$ square yards. Find the number of cans of paint needed by dividing the area of the wall by the amount of square yards covered by one can of paint: $30 \div 10 = 3$ cans.

Area and Perimeter Practice Set 2

1. **Answer choice (b) is the correct answer.** The perimeter is equal to the sum of all four sides: 5 + 5 + 9 + 9 = 28 cm.

2. **Answer choice (c) is the correct answer.** The equation for the area of a triangle is $A = (bh) \div 2$, where b is the base and h is the height. Plug in 20 for the area and 10 for the base and solve for the height: $20 = (10h) \div 2 \rightarrow 40 = 10h \rightarrow h = 4$ yards.

3. **Answer choice (b) is the correct answer.** Change 50 mm into cm: there are 10 mm in 1 cm, so 50 mm equals 5 cm. The area of a rectangle equals the length times the width, so the area equals $5 \bullet 30 = 150$ cm^2.

4. **Answer choice (d) is the correct answer.** Since the area of the triangle is twice the area of the square, the area of the square is half of the area of the triangle. Therefore, the area of the square equals $72 \div 2 = 36$ ft^2. The equation for the area of a square is $A = s^2$, where s equals the side length of the square. Therefore, the side length of a square with an area of 36 in^2 is 6 because $6^2 = 36$. Find the perimeter by multiplying the side length by 4: $6 \bullet 4 = 24$ inches.

5. **Answer choice (a) is the correct answer.** The length of the top horizontal segment equals the sum of the three bottom horizontal segments. The length of the top horizontal segment is 17 in, so the sum of the bottom three horizontal segments is also 17 in. The sum of the two left vertical segments equals the sum of the two right vertical segments. The sum of the two right vertical segments is 8 in, so the sum of the two left vertical segments is also 8 in. The perimeter is the sum of all of the sides, so the perimeter equals $17 + 17 + 8 + 8 = 25$ in.

6. **Answer choice (a) is the correct answer.** The perimeter of a square equals the sum of the four sides. Since the four sides are the same, the perimeter equals $4s$ where s is the side length. Therefore, the side length of a square with a perimeter of 64 in is 16 in because $16 \bullet 4 = 64$. The equation for the area of a square is $A = s^2$, where s equals the side length of the square. Therefore, the area of a square with a side length of 16 in is $16^2 = 256$ in^2.

7. **Answer choice (c) is the correct answer.** The perimeter of a triangle is the sum of the sides. An isosceles triangle has two sides that are equal. Therefore, the triangle could have sides measuring 8 cm, 8 cm, and 6 cm and the perimeter equals $8 + 8 + 6 = 22$ cm. It could also have sides measuring 6 cm, 6 cm, and 8 cm and the perimeter equals $6 + 6 + 8 = 20$ cm.

8. **Answer choice (b) is the correct answer.** Find the area of the rug by multiplying the dimensions: $12 \bullet 8 = 96$ square feet. Find the price of the rug by multiplying the cost per square foot by the area: $\$3.25 \bullet 96 = \$312$.

9. **Answer choice (a) is the correct answer.** The area of the entire figure equals the area of the square plus the areas of the two semicircles. The diameter of the semicircles equals the side length of the square which is 6 in; the radius of the semicircles is half of the diameter, so it equals 3 in. Since the two semicircles are equal, we can treat them like one full circle. The

formula for the area of a circle is $A = \pi r^2$, so the area of the two semicircles equals $\pi \cdot 3^2 = 9\pi$ in^2. The area of a square equals the side lengths squared, so the area of the square equals $6^2 = 36$ in^2. Therefore, the area of the entire figure equals $9\pi + 36$ in^2.

10. **Answer choice (d) is the correct answer.** Find the shaded area by subtracting the area of the white circle from the area of the outer square. If the perimeter of the square is 32 m, then the side length is 8 m because $8 \cdot 4 = 32$. The formula for the area of a square is $A = s^2$, where s is the side length of the square. Therefore, the area of the square equals $8^2 = 64$ m^2. The side length of this square equals the diameter of the circle which is 8 m, so the radius of the circle is 4 m. The formula for the area of a circle is $A = \pi r^2$, so the area of the circle equals $\pi \cdot 4^2 = 16\pi$ m^2. Therefore, the shaded area equals $64 - 16\pi$ m^2.

Circles Practice Set 1

1. **Answer choice (c) is the correct answer.** The diameter of a circle is twice the radius: $5 \cdot 2 = 10$.

2. **Answer choice (c) is the correct answer.** The formula for the circumference of a circle is $C = 2\pi r$, so the circumference of a circle with a radius of 3 m equals $2\pi \cdot 3 = 6\pi$ m.

3. **Answer choice (b) is the correct answer.** The formula for the area of a circle is $A = \pi r^2$. The diameter of the circle is 10 cm, so the radius is 5 cm. Therefore, the area equals $\pi \cdot 5^2 = 25\pi$ cm^2.

4. **Answer choice (a) is the correct answer.** The radius equals half of the diameter: $17 \div 2 = 8.5$.

5. **Answer choice (d) is the correct answer.** The formula for the circumference of a circle is $C = 2\pi r$. Plug in 9π for C and solve for r: $9\pi = 2\pi r \rightarrow r = 4.5$ ft.

6. **Answer choice (d) is the correct answer.** The formula for the area of a circle is $A = \pi r^2$. Plug in 121π for A and solve for r: $121\pi = \pi r^2 \rightarrow 121 = r^2 \rightarrow r = 11$ cm. Multiply the radius by 2 to find the diameter: $2 \cdot 11 = 22$ cm.

7. **Answer choice (b) is the correct answer.** The formula for the area of a circle is $A = \pi r^2$. Therefore, the area of a circle with a radius of 20 in equals $\pi \cdot 20^2 = 400\pi$ in^2.

8. **Answer choice (a) is the correct answer.** The formula for the circumference of a circle is C = $2\pi r$ which is the same as C = πd. Therefore, the circumference of a circle with a diameter of 13 yd is 13π yd.

9. **Answer choice (c) is the correct answer.** The formula for the circumference of a circle is C = $2\pi r$. Plug in 4π for C and solve for r: $4\pi = 2\pi r \rightarrow r = 2$ ft. The formula for the area of a circle is A = πr^2. Therefore, the area of a circle with a radius of 2 ft equals $\pi \cdot 2^2 = 4\pi$ ft^2.

10. **Answer choice (d) is the correct answer.** The formula for the area of a circle is A = πr^2. Plug in 36π for A and solve for r: $36\pi = \pi r^2 \rightarrow 36 = r^2 \rightarrow r = 6$ in. The formula for the circumference of a circle is C = $2\pi r$, so the circumference of a circle with a radius of 6 in equals $2\pi \cdot 6 = 12\pi$ in.

Circles Practice Set 2

1. **Answer choice (c) is the correct answer.** The radius equals half of the diameter: 25 ÷ 2 = 12.5.

2. **Answer choice (b) is the correct answer.** The formula for the area of a circle is A = πr^2. The diameter of the circle is 12 mm, so the radius is 6 mm. Therefore, the area equals $\pi \cdot 6^2 = 36\pi$ mm^2.

3. **Answer choice (a) is the correct answer.** The diameter of a circle is twice the radius: 11 • 2 = 22.

4. **Answer choice (c) is the correct answer.** The formula for the circumference of a circle is C = $2\pi r$, so the circumference of a circle with a radius of 7 in equals $2\pi \cdot 7 = 14\pi$ in.

5. **Answer choice (c) is the correct answer.** The formula for the area of a circle is A = πr^2. Plug in 64π for A and solve for r: $64\pi = \pi r^2 \rightarrow 64 = r^2 \rightarrow r = 8$ cm.

6. **Answer choice (d) is the correct answer.** The formula for the area of a circle is A = πr^2. Therefore, the area of a circle with a radius of 12 in equals $\pi \cdot 12^2 = 144\pi$ in^2.

7. **Answer choice (a) is the correct answer.** The formula for the circumference of a circle is C = $2\pi r$ which is the same as C = πd. Therefore, the circumference of a circle with a diameter of 30 m is 30π m.

8. **Answer choice (d) is the correct answer.** The formula for the circumference of a circle is C = $2\pi r$ which is the same as C = πd. Plug in 15π for C and solve for d: $15\pi = \pi d \rightarrow d = 15$ ft.

9. **Answer choice (b) is the correct answer.** The formula for the area of a circle is $A = \pi r^2$. Plug in 36π for A and solve for r: $81\pi = \pi r^2 \rightarrow 81 = r^2 \rightarrow r = 9$ ft. The formula for the circumference of a circle is $C = 2\pi r$, so the circumference of a circle with a radius of 9 ft equals $2\pi \bullet 9 = 18\pi$ ft.

10. **Answer choice (c) is the correct answer.** The formula for the circumference of a circle is $C = 2\pi r$. Plug in 16π and solve for r: $16\pi = 2\pi r \rightarrow r = 8$ m. The formula for the area of a circle is $A = \pi r^2$. Therefore, the area of a circle with a radius of 8 m equals $\pi \bullet 8^2 = 64\pi$ m^2.

Volume, Surface Area, and 3D Shapes Practice Set 1

1. **Answer choice (c) is the correct answer.** The formula for the volume of a cube is $V = s^3$, where s is the side length of the cube. Therefore, the volume of a cube with a side length of 3 in = $3^3 = 27$ in^3.

2. **Answer choice (b) is the correct answer.** The formula for the volume of a cube is $V = s^3$, where s is the side length of the cube. Therefore, if the volume of a cube is 8 ft^3, the side length is 2 ft because $2^3 = 8$. The formula for the surface area of a cube is $SA = 6s^2$, where s is the side length of the cube. Therefore, the surface area of a cube with a side length of 2 ft = $6 \bullet 2^2 = 6 \bullet 4 = 24$ ft^2.

3. **Answer choice (d) is the correct answer.** The formula for the surface area of a rectangular prism is $SA = 2lw + 2lh + 2wh$, where *l, w,* and *h,* are the length, width and height respectively. Therefore, the surface area of the given rectangular prism is $2(7)(4) + 2(7)(1) + 2(4)(1) = 56 + 14 + 8 = 78$ in^2.

4. **Answer choice (a) is the correct answer.** The formula for the volume of a rectangular prism is $V = lwh$, where *l, w,* and *h* are the length, width, and height respectively. Find the volume by multiplying the three dimensions: $V = 3 \bullet 2 \bullet 7 = 42$ cm^3.

5. **Answer choice (a) is the correct answer.** A pyramid is a 3D shape with a base and three or more triangular faces that meet at a point.

6. **Answer choice (b) is the correct answer.** A sphere is a round solid figure like a ball or globe.

7. **Answer choice (c) is the correct answer.** A cylinder has two bases that are circles connected by a curved side that is made from a rectangle.

8. **Answer choice (b) is the correct answer.** A triangular prism is a 3D shape with two triangular bases connected with three rectangles.

9. **Answer choice (a) is the correct answer.** The amount of cubic feet of water that can fit in the pool is equal to the volume of the pool. The formula for the volume of a rectangular prism is V = *lwh*, where *l, w,* and *h* are the length, width, and height (depth) respectively. The area of the base of a rectangular prism equals *lw*, so plug in 120 for *lw* and 8 for *h* and solve for the volume: V = 120 • 8 = 960 cubic feet.

10. **Answer choice (c) is the correct answer.** Find the total number of small cubes by multiplying the dimensions of the large rectangular prism: 4 • 3 • 2 = 24 total cubes. Find the total volume of the rectangular prism by multiplying the volume of each small cube by the number of small cubes: 1.5 • 24 = 36 cubic cm.

Volume, Surface Area, and 3D Shapes Practice Set 2

1. **Answer choice (a) is the correct answer.** The formula for the surface area of a cube is SA = $6s^2$, where *s* is the side length of the cube. Therefore, the surface area of a cube with a side length of 6 in = 6 • 6^2 = 6 • 36 = 216 in^2.

2. **Answer choice (b) is the correct answer.** The formula for the surface area of a cube is SA = $6s^2$, where *s* is the side length of the cube. Find the side length of the cube by plugging in 54 for SA and solving for *s*: $54 = 6s^2 \rightarrow 9 = s^2 \rightarrow s = 3$ cm. The formula for the volume of a cube is V = s^3, where *s* is the side length of the cube. Therefore, the volume of a cube with a side length of 3 cm = 3^3 = 27 cm^3.

3. **Answer choice (b) is the correct answer.** The formula for the volume of a rectangular prism is V = *lwh*, where *l, w,* and *h* are the length, width, and height respectively. Find the volume by multiplying the three dimensions: V = 5 • 3 • 6 = 90 km^3.

4. **Answer choice (d) is the correct answer.** A cube is a six-sided, 3D figure made up of six congruent squares.

5. **Answer choice (a) is the correct answer.** A cylinder has two bases that are circles connected by a curved side.

6. **Answer choice (b) is the correct answer.** The formula for the surface area of a rectangular prism is SA = 2*lw* + 2*lh* + 2*wh*, where *l, w,* and *h,* are the length, width and height respectively. Therefore, the surface area of the given rectangular prism is 2(8)(4) + 2(8)(4) + 2(4)(4) = 64 + 64 + 32 = 160 cm^2.

7. **Answer choice (c) is the correct answer.** The amount of cubic feet of water that can fit in the pool is equal to the volume of the pool. The formula for the volume of a rectangular prism is V = *lwh*, where *l, w,* and *h* are the length, width, and height (depth) respectively. The area of the base of a rectangular prism equals *lw*, so plug in 75 for *lw* and 450 for V and solve for the height: $450 = 75h \rightarrow h = 6$ ft.

8. **Answer choice (a) is the correct answer.** A rectangular prism is a 3D shape made up of three pairs of congruent rectangular sides.

9. **Answer choice (d) is the correct answer.** A square pyramid is a 3D shape with a square base and four triangular faces that meet at a point.

10. **Answer choice (c) is the correct answer.** The formula for the volume of a cube is $V = s^3$, where *s* is the side length of the cube. If the base area of the small cube is 4 cm, then the side length is 2 cm because the base is a square. Therefore, the volume of the small cube is $2^3 = 8$. The volume of the large cube is $4^3 = 64$. Divide the volume of the large cube by the volume of the small cube to determine how many small cubes can fit inside the large cube: $64 \div 8 = 8$.

Pythagorean Theorem Practice Set 1

1. **Answer choice (c) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 6^2 + 6^2 = c^2 \rightarrow 36 + 36 = c^2 \rightarrow 72 = c^2 \rightarrow c = \sqrt{72} \rightarrow c = 6\sqrt{2}$ in.

2. **Answer choice (a) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow (\sqrt{5})^2 + (\sqrt{7})^2 = c^2 \rightarrow 5 + 7 = c^2 \rightarrow 12 = c^2 \rightarrow c = \sqrt{12}$.

3. **Answer choice (d) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + 5^2 = 8^2 \rightarrow a^2 + 25 = 64 \rightarrow 39 = a^2 \rightarrow a = \sqrt{39}$.

4. **Answer choice (b) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 3^2 + 4^2 = c^2 \rightarrow 16 + 9 = c^2 \rightarrow 25 = c^2 \rightarrow c = 5$ ft.

5. **Answer choice (c) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + 5^2 = 13^2 \rightarrow a^2 + 25 = 169 \rightarrow 144 = a^2 \rightarrow a = 12$ cm.

6. **Answer choice (d) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + 12^2 = 20^2 \rightarrow a^2 + 144 = 400 \rightarrow 256 = a^2 \rightarrow a = 16$ in. Now find the

area of the triangle using the formula $A = (bh) \div 2$, where b is the base of the triangle and h is the height: $A = (16 \bullet 12) \div 2 = 192 \div 2 = 96$ in^2.

7. **Answer choice (c) is the correct answer.** If you draw the situation, you will have a right triangle with two legs measuring 7 miles and 24 miles. The distance between you and your starting point is the hypotenuse, so use the pythagorean theorem to solve for the hypotenuse: $a^2 + b^2 = c^2 \rightarrow 7^2 + 24^2 = c^2 \rightarrow 49 + 576 = c^2 \rightarrow 625 = c^2 \rightarrow c = 25$ miles.

8. **Answer choice (a) is the correct answer.** Use the pythagorean theorem to find the width of the rectangle: $a^2 + b^2 = c^2 \rightarrow a^2 + 11^2 = 12^2 \rightarrow a^2 + 121 = 144 \rightarrow 23 = a^2 \rightarrow a = \sqrt{23}$. Find the area of the rectangle by multiplying the length times the width: $A = 11 \bullet \sqrt{23} = 11\sqrt{23}$ ft^2.

9. **Answer choice (d) is the correct answer.** If you draw the situation, you will have a right triangle with the hypotenuse representing the 41-foot ladder. The base of the triangle is 9 ft. Use the pythagorean theorem to find the height of the triangle: $a^2 + b^2 = c^2 \rightarrow a^2 + 9^2 = 41^2 \rightarrow a^2 + 81 = 1681 \rightarrow 1600 = a^2 \rightarrow a = 40$ ft.

10. **Answer choice (b) is the correct answer.** First, find the base of the triangle. The formula for the area of a triangle is $A = (bh) \div 2$, where b is the base of the triangle and h is the height. Plug in 24 for A and 8 for h and solve for b: $24 = (8b) \div 2 \rightarrow 48 = 8b \rightarrow b = 6$ in. Now find the hypotenuse using the pythagorean theorem: $a^2 + b^2 = c^2 \rightarrow 6^2 + 8^2 = c^2 \rightarrow 36 + 64 = c^2 \rightarrow 100 = c^2 \rightarrow c = 10$ in.

Pythagorean Theorem Practice Set 2

1. **Answer choice (b) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 10^2 + 10^2 = c^2 \rightarrow 100 + 100 = c^2 \rightarrow 200 = c^2 \rightarrow c = \sqrt{200} \rightarrow c = 10\sqrt{2}$ ft.

2. **Answer choice (c) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 8^2 + 15^2 = c^2 \rightarrow 64 + 225 = c^2 \rightarrow 289 = c^2 \rightarrow c = 17$ m.

3. **Answer choice (a) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + (\sqrt{8})^2 = (\sqrt{17})^2 \rightarrow a^2 + 8 = 17 \rightarrow 9 = a^2 \rightarrow a = 3$.

4. **Answer choice (a) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 2^2 + (\sqrt{45})^2 = c^2 \rightarrow 4 + 45 = c^2 \rightarrow 49 = c^2 \rightarrow c = 7$.

5. **Answer choice (d) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + 6^2 = 10^2 \rightarrow a^2 + 36 = 100 \rightarrow 64 = a^2 \rightarrow a = 8$ in.

6. **Answer choice (b) is the correct answer.** If you draw the situation, you will have a right triangle with one leg measuring 9 feet and the hypotenuse measuring 15 ft. Use the pythagorean theorem to find the missing side which represents the distance you walked west: $a^2 + b^2 = c^2 \rightarrow a^2 + 9^2 = 15^2 \rightarrow a^2 + 81 = 225 \rightarrow 144 = a^2 \rightarrow a = 12$ ft.

7. **Answer choice (c) is the correct answer.** Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow a^2 + 12^2 = 13^2 \rightarrow a^2 + 144 = 169 \rightarrow 25 = a^2 \rightarrow a = 5$ in. Now find the area of the triangle using the formula $A = (bh) \div 2$, where b is the base of the triangle and h is the height: $A = (5 \bullet 12) \div 2 = 60 \div 2 = 30$ in^2.

8. **Answer choice (a) is the correct answer.** If you draw the situation, you will have a right triangle with a height of 21 ft and a base of 20 ft. Use the pythagorean theorem to find the distance between Ainsley and the dog which is the hypotenuse: $a^2 + b^2 = c^2 \rightarrow 20^2 + 21^2 = c^2 \rightarrow 400 + 441 = c^2 \rightarrow 841 = c^2 \rightarrow c = 29$ ft.

9. **Answer choice (c) is the correct answer.** The formula for the area of a rectangle is $A = lw$, where l and w represent the length and width respectively. Therefore, the width of the rectangle is 10 ft because $24 \bullet 10 = 240$. If you draw a diagonal of the rectangle, it makes two right triangles. Use the pythagorean theorem to find the diagonal which is the hypotenuse: $a^2 + b^2 = c^2 \rightarrow 10^2 + 24^2 = c^2 \rightarrow 100 + 576 = c^2 \rightarrow 676 = c^2 \rightarrow c = 26$ ft.

10. **Answer choice (b) is the correct answer.** First find the base of the triangle. The formula for the area of a triangle is $A = (bh) \div 2$, where b is the base of the triangle and h is the height. Plug in 12 for A and 48 for h and solve for b: $12 = (4h) \div 2 \rightarrow 24 = 4h \rightarrow h = 6$ in. Now find the hypotenuse using the pythagorean theorem: $a^2 + b^2 = c^2 \rightarrow 6^2 + 4^2 = c^2 \rightarrow 36 + 16 = c^2 \rightarrow 52 = c^2 \rightarrow c = \sqrt{52} \rightarrow c = 2\sqrt{13}$ in.

Geometry Vocabulary Practice Set 1

1. **Answer choice (b) is the correct answer.** A pentagon is a five-sided shape.

2. **Answer choice (c) is the correct answer.** Equilateral triangles have three equal sides and three congruent angles. Each angle measures 60° because the sum of the angles in a triangle is 180°.

3. **Answer choice (c) is the correct answer.** A heptagon is a seven-sided shape.

4. **Answer choice (a) is the correct answer.** Because the two acute angles in the right triangle are congruent, the two legs are congruent. Therefore, the triangle is isosceles because an isosceles triangle has two equal sides.

5. **Answer choice (a) is the correct answer.** An acute angle is an angle measuring less than 90°.

6. **Answer choice (d) is the correct answer.** A rhombus is a parallelogram with all equal sides. A square is a more specific type of rhombus that has all congruent angles, each measuring 90°.

7. **Answer choice (d) is the correct answer.** If two angles are supplementary, they add up to 180°. Therefore, $A + B = 180° \rightarrow 40° + B = 180° \rightarrow B = 140°$.

8. **Answer choice (c) is the correct answer.** A trapezoid is a shape with at least one pair of parallel sides. The top and bottom sides are parallel because if they were extended, they would never touch.

9. **Answer choice (b) is the correct answer.** If two angles are complements, they add up to 90°. Therefore, since $20° + 70° = 90°$, 70° is the complement of 20°.

10. **Answer choice (b) is the correct answer.** The diagonals of a square are two of the lines of symmetry. If you connect the midpoints of the top and bottom sides that is another line of symmetry. If you connect the midpoints of the left and right sides that is another line of symmetry.

Geometry Vocabulary Practice Set 2

1. **Answer choice (b) is the correct answer.** An octagon is an 8-sided shape.

2. **Answer choice (a) is the correct answer.** A hexagon is a 6-sided shape.

3. **Answer choice (d) is the correct answer.** If two angles are supplements, they add up to 180°. Therefore, since $30° + 150° = 180°$, 150° is the supplement of 30°.

4. **Answer choice (c) is the correct answer.** An isosceles triangle is a triangle with at least two equal sides and at least two equal angles.

5. **Answer choice (a) is the correct answer.** An acute triangle has three angles that are all acute. An acute angle has a measure less than 90°.

6. **Answer choice (a) is the correct answer.** If two angles are complementary, they add up to 90°. Therefore, A + B = 90° → 55° + B = 90° → B = 35°.

7. **Answer choice (c) is the correct answer.** A rhombus is a parallelogram with all equal sides. Therefore, a rhombus is a parallelogram, but a parallelogram is not necessarily a rhombus.

8. **Answer choice (c) is the correct answer.** An obtuse angle has a measure greater than 90°.

9. **Answer choice (d) is the correct answer.** A scalene triangle is a triangle with no equal sides.

10. **Answer choice (b) is the correct answer.** A quadrilateral is any four sided shape.

Mixed Word Problems Practice Set 1

1. **Answer choice (b) is the correct answer.** Multiply the cost per apple times the number of apples, multiply the cost per orange times the number of oranges, and add the result: 6($1.15) + 4($0.82) = $6.90 + $3.82 = $10.18.

2. **Answer choice (a) is the correct answer.** Let x equal the number. Set up and solve the following equation: $x + 17 = 83 \rightarrow x = 66$. Find the product of 66 and 3: 66 • 3 = 198.

3. **Answer choice (d) is the correct answer.** Let the total number of slices in the pizza equal 10 (because 10 is a common multiple of the two denominators). On Tuesday, Liam ate ½ of the pizza: ½ of 10 = 5 slices. Therefore, he has 5 slices left. He then eats ⅕ of the remaining 5 slices: ⅕ of 5 = 1 slices. In total, he ate 6 out of 10 slices which equals 6/10. This simplifies to ⅗.

4. **Answer choice (d) is the correct answer.** Nina weighs 13.94 more pounds than Johnson, so Johnson weighs 13.94 fewer pounds than Nina. Therefore, Johnson's weight equals 145.72 – 13.94 = 131.78 pounds.

5. **Answer choice (b) is the correct answer.** Divide $\frac{7}{8}$ by 5: $\frac{7}{8} \div 5 = \frac{7}{8} \bullet \frac{1}{5} = \frac{7}{40}$.

6. **Answer choice (a) is the correct answer.** $4 less than twice $48 can be written as 2(48) – 4. Simplify this: 2(48) – 4 = 96 – 4 = $92. Therefore, Maria has $92. Find the total amount of money Maria and her brother have: $48 + $92 = $140.

7. **Answer choice (d) is the correct answer.** Change $2\frac{3}{5}$ into a decimal by dividing the numerator of the fraction part by the denominator and keeping the whole number the same to get 2.6. Find the total number of miles Mackenzie ran so far: 6.8 + 2.6 = 9.4 miles. Subtract the number of miles she ran so far from her goal: 14.5 – 9.4 = 5.1 miles.

8. **Answer choice (b) is the correct answer.** Since Tom's age is one third of Lara's age, Lara's age is three times Tom's age. Therefore, Lara's age is 18 • 3 = 54 years. Since Lara is 14 years younger than Brynn, Brynn is 14 years older than Lara. Therefore, Brynn's age is 54 + 14 = 68 years.

9. **Answer choice (c) is the correct answer.** Let x equal the number. Set up and solve the following equation: $3.7x = 18.87 \rightarrow x = 5.1$. Find 2.3 less than 5.1: 5.1 – 2.3 = 2.8.

10. **Answer choice (a) is the correct answer.** The losing team scored fewer points than the winning team, so the losing team scored fewer than half of the total points. Half of 94 equals 47 points, so we can cross out answer choices (b) and (c). Now check answer choice (a) and (d) and see if they work. Check choice (a): if the losing team scored 43 points, the winning team scored 43 + 8 = 51 points. Because 43 + 51 = 94, answer choice (a) is correct.

Mixed Word Problems Practice Set 2

1. **Answer choice (b) is the correct answer.** Let x equal the number. Set up and solve the following equation: $8x = 56 \rightarrow x = 7$. Cube the number: $7^3 = 7 \bullet 7 \bullet 7 = 343$.

2. **Answer choice (b) is the correct answer.** Set up and solve an equation that represents, "6 is $\frac{3}{7}$ of the total" using x to represent the total: $6 = \frac{3}{7}x \rightarrow x = 14$ slices.

3. **Answer choice (d) is the correct answer.** Multiply the cost per pack of pencils times the number of packs of pencils, multiply the cost per pack of pens times the number of packs of pens, and add the result: 4($6.07) + 7($4.98) = $24.28 + $34.86 = $59.14.

4. **Answer choice (a) is the correct answer.** Let the total money Mr. Miller started with equal $21 (because 21 is a common multiple of the two denominators). He spends $\frac{4}{7}$ of his money on rent: $\frac{4}{7}$ of 21 = $\frac{4}{7} \bullet 21 = \$12$. Therefore, he has $21 – $12 = $9 left. He then spends $\frac{1}{3}$ of

the remaining \$9: $\frac{1}{3}$ of 9 = \$3. Therefore, he has \$9 – \$3 = \$6 left out of his original \$21. This represents $\frac{6}{21}$ of his money which simplifies to $\frac{2}{7}$.

5. **Answer choice (c) is the correct answer.** Since Priyanka was 4.78 seconds faster than Steven, Steven's time was 4.78 slower than Priyanka's, so Steven's time was 4.78 seconds more than Priyanka's. Therefore, Steven's time = 39.54 + 4.78 = 44.32 seconds. Find the sum of their times: 39.54 + 44.32 = 83.86 seconds.

6. **Answer choice (c) is the correct answer.** Change $1\frac{3}{10}$ into a decimal to get 1.3. Find the amount of water Devin drank yesterday by adding 1.3 to the amount he drank today: 7.2 + 1.3 = 8.5 cups. Add the amount of water Devin drank on each day: 7.2 + 8.5 = 15.7 cups.

7. **Answer choice (c) is the correct answer.** Since Leo lost 6 fewer games than he won, the number of games he lost is fewer than half of the total games. Half of 28 is 14, so the answer must be fewer than 14. This eliminates answer choices (b) and (d). Now check answer choice (a) and (c) and see if they work. Check choice (a): If Leo lost 8 games, then he won 14 games (8 is 6 fewer than 14). 8 + 14 = 22 total games. Answer choice (a) is incorrect because the total number of games should equal 28. Check choice (c): If Leo lost 11 games, then he won 17 games (11 is 6 fewer than 17). 11 + 17 = 28 total games, so answer choice (c) is correct.

8. **Answer choice (d) is the correct answer.** Let *x* represent the number. Set up and solve the following equation: 9.25 ÷ *x* = 37 → *x* = 0.25. Now find $\frac{2}{5}$ of the number: $\frac{2}{5}$ of 0.25 = $\frac{2}{5}$ • 0.25. $\frac{2}{5}$ is equal to 0.4, so multiply 0.4 by 0.25 to get 0.1.

9. **Answer choice (a) is the correct answer.** Yasmin's height is three-fourths of Danielle's, so set up and solve the following equation using *d* to represent Danielle's height and 48 for Yasmin's height: 48 = $\frac{3}{4}$ • *d* → *d* = 64 inches. Anthony is 3 inches shorter than Danielle, so Anthony's height is 64 – 3 = 61 inches. Anthony is 8 inches taller than Lucas, so Lucas is 8 inches shorter than Anthony. Therefore, Lucas' height is 61 – 8 = 53. Find the combined height of Anthony and Lucas: 61 + 53 = 114 inches.

10. **Answer choice (b) is the correct answer.** For this problem, we need to work backwards. After buying 12 cards, Tommy had 30 cards. Therefore, before Tommy bought those 12 cards, he had 18 cards. After Tommy sold two-fifths of his cards, he had 18 cards which represents three-fifths of his starting cards. Therefore, we can set up an equation that

represents "18 is three-fifths of Tommy's starting amount" using x to represent the number of cards Tommy started with: $18 = \frac{3}{5} \bullet x \rightarrow x = 30$ cards. You can also test each answer choice until you find one that works.

Sequences with Numbers Practice Set 1

1. **Answer choice (a) is the correct answer.** The rule for the sequence is *subtract 5*, so the next number is –11 – 5 = –16.

2. **Answer choice (b) is the correct answer.** The rule for the sequence is *multiply by 3, multiply by 2*. Since 6 was multiplied by 3 to get to 18, multiply 18 by 2 to find the next number: 18 • 2 = 36.

3. **Answer choice (c) is the correct answer.** The rule for the sequence is *divide by 4*, so the next number is 4 ÷ 4 = 1.

4. **Answer choice (a) is the correct answer.** The rule for the sequence is *add 2, subtract 5*. Since 5 was subtracted from 18 to get to 13, we need to add 2 to 13 to find the next number: 13 + 2 = 15.

5. **Answer choice (d) is the correct answer.** The pattern is *add 1, add 3, add 5, add 7,* so each time we add two more than the previous amount that was added. Therefore, to find the next number we need to add 9 to 137: 137 + 9 = 146.

6. **Answer choice (c) is the correct answer.** If you write the sequence in standard numbers, it becomes 1, 3, 5, 7. Therefore, the rule is *add 2*, so the next number is 7 + 2 = 9. In Roman numbers, 9 is equal to IX.

7. **Answer choice (d) is the correct answer.** The pattern is *subtract 1, subtract 2, subtract 4, subtract 8,* so each time we subtract double of the previous amount that was subtracted. Therefore, to find the next three numbers, we subtract 16, subtract 32, subtract 64: 35 – 16 = 19, 19 – 32 = –13, –13 – 64 = –77.

8. **Answer choice (b) is the correct answer.** The rule for the sequence is *add 13*, so the missing number equals 15 + 13 = 28.

9. **Answer choice (c) is the correct answer.** The rule for the sequence is *multiply by 2*, so the next number equals 128 • 2 = 256.

10. **Answer choice (c) is the correct answer.** As the numerator goes up by 1, the denominator goes up by 3. Therefore, the numerator of the next fraction is 5 and the denominator is 11 + 3 = 14.

11. **Answer choice (b) is the correct answer.** The rule for the sequence is *multiply by –2, add 7*. Since 17 was multiplied by –2 to get to –34, we need to add 7 to –34 to find the next number: –34 + 7 = –27.

12. **Answer choice (a) is the correct answer.** The rule for the sequence is *divide by 2, subtract 4*. Since 4 was subtracted from 28 to get to 24, we need to divide 24 by 2 to find the next number, then subtract 4, then divide by 2: 24 ÷ 2 = 12, 12 – 4 = 8, 8 ÷ 2 = 4.

13. **Answer choice (a) is the correct answer.** Each term is a perfect square: $0^2 = 0$, $1^2 = 1$, $2^2 = 2$, $3^2 = 9$, $4^2 = 16$. Therefore, the next three terms are 5^2, 6^2, and 7^2 which equals 25, 36, 49.

14. **Answer choice (d) is the correct answer.** The pattern is *add 17, subtract 15, add 13, subtract 11, add 9*. Each time, the number we add or subtract goes down by 2, and whether we add or subtract alternates. Therefore, to find the next number, subtract 7 from 15: 15 – 7 = 8.

15. **Answer choice (a) is the correct answer.** If we write the numbers as standard numbers, we get 6, 10, 14, 18. Therefore, the rule for the sequence is *add 4*, so the next number is 18 + 4 = 22. In Roman numerals, 22 is equal to XXII.

16. **Answer choice (a) is the correct answer.** The first four numbers follow the pattern *multiply by 2, multiply by 3, multiply by 4*, so the number we multiply by increases by 1 each time. Therefore, the missing number equals 24 • 5 = 120.

17. **Answer choice (d) is the correct answer.** The pattern is *subtract 1, subtract 2, subtract 3, subtract 4, subtract 5*, so the amount that is subtracted is 1 more than the previous amount subtracted. Therefore, to find the next term, subtract 6 from –13: –13 – 6 = –19.

18. **Answer choice (b) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms follow the rule *add 4*, and the even terms follow the rule *add 7*. We are finding the 8th term, so use the even rule. Add 7 to the previous even term: 21 + 7 = 28.

19. **Answer choice (c) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the

second, fourth, sixth term etc) follow a different pattern. The odd terms follow the rule *add 3*, and the even terms follow the rule *add 1*. Therefore, to find the seventh term, use the odd rule and add 3 to the previous odd term: 9 + 3 = 12. To find the eighth term, use the even rule and add 1 to the previous even term: 2 + 1 = 3. To find the ninth term, use the odd rule and add 3 to the seventh term: 12 + 3 = 15. Therefore, the next three terms are 12, 3, 15.

20. **Answer choice (b) is the correct answer.** The sequence written in standard numbers is 12, 10, ___, 6, 4, so the rule for the sequence is *subtract 2*. Therefore, the missing number is 10 – 2 = 8. In Roman numerals, 8 is written as VIII.

Sequences with Numbers Practice Set 2

1. **Answer choice (b) is the correct answer.** The rule for the sequence is *add 9*, so the next term equals 17 + 9 = 26.

2. **Answer choice (c) is the correct answer.** The rule for the sequence is *divide by 4, divide by 2*. Since 2048 was divided by 4 to get to 512, divide 512 by 2 to find the missing number: 512 ÷ 2 = 256.

3. **Answer choice (b) is the correct answer.** The rule for the sequence is *multiply by 5*, so the next term equals 375 • 5 = 1875.

4. **Answer choice (d) is the correct answer.** The rule for the sequence is *multiply by 2, subtract 8*. Since 16 was multiplied by 2 to get 32, subtract 8 from 32 to find the next term, then multiply by 2, then subtract 8: 32 – 8 = 24, 24 • 2 = 48, 48 – 8 = 40.

5. **Answer choice (a) is the correct answer.** The rule for the sequence is *subtract 6*, so the next term equals 65 – 6 = 59.

6. **Answer choice (c) is the correct answer.** The pattern written in standard numbers is 2, 4, 6, 8 … so the rule is *add 2*. Therefore, the next term is 10 which is X in Roman numerals.

7. **Answer choice (d) is the correct answer.** The pattern is *subtract 2, subtract 4, subtract 8, subtract 16*, so the amount that is subtracted is double the previous subtracted amount. Therefore, to find the next term, subtract 32 from 20: 20 – 32 = –12.

8. **Answer choice (a) is the correct answer.** The rule for the sequence is *add 2, subtract 3*. Since 2 was added to 16 to get 18, subtract 3 from 18 to find the next term: 18 – 3 = 15.

9. **Answer choice (a) is the correct answer.** Remember that 1 equals $\frac{3}{3}$, so the sequence is $\frac{1}{3}, \frac{3}{3}, \frac{5}{3}, \frac{7}{3}$. The rule is *add 2 to the numerator*, so the next three terms are $\frac{9}{3}, \frac{11}{3}, \frac{13}{3}$. $\frac{9}{3}$ equals 3, so the next three terms are 3, $\frac{11}{3}, \frac{13}{3}$.

10. **Answer choice (c) is the correct answer.** Each term is a perfect cube: $0^3 = 0$, $1^3 = 1$, $2^3 = 8$, $3^3 = 27$, $4^3 = 64$. Therefore, the next term is $5^3 = 125$.

11. **Answer choice (c) is the correct answer.** The rule for the sequence is *divide by 3*, so the next term is $18 \div 3 = 6$.

12. **Answer choice (b) is the correct answer.** The pattern written in standard numbers is 10, 20, 30, 40, so the rule is *add 10*. Therefore, the next three terms are 50, 60, 70 which can be written in Roman numerals as L, LX, LXX.

13. **Answer choice (d) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms follow the rule *add 5*, and the even terms follow the rule *add 3*. We are looking for the eighth term, so we will use the even rule and add 3 to the last even term: $9 + 3 = 12$.

14. **Answer choice (b) is the correct answer.** The pattern is *multiply by 2, multiply by 4, multiply by 6, multiply by 8*, so the number that we multiply by increases by 2 each term. Therefore, to find the next term, multiply 192 by 10: $192 \bullet 10 = 1920$.

15. **Answer choice (c) is the correct answer.** The rule for the sequence is *divide by 5, add 50*. To get from 30 to 80, 50 was added. Therefore, to find the next two terms, divide 80 by 5, then add 50: $80 \div 5 = 16$, $16 + 50 = 66$.

16. **Answer choice (a) is the correct answer.** The pattern is *add 3, add 5, add 7, add 9, add 11*, so the missing number equals $10 + 5 = 15$.

17. **Answer choice (d) is the correct answer.** The rule for the sequence is *multiply by –2, subtract 2*. Since 2 was subtracted from 36 to get to 34, find the next number by multiplying 34 by –2: $34 \bullet (-2) = -68$.

18. **Answer choice (b) is the correct answer.** The sequence written in standard numbers is 4, 7, 10, 13, so the rule is *add 3*. Therefore, the next number is $13 + 3 = 16$ which is equal to XVI in Roman numerals.

19. **Answer choice (b) is the correct answer.** The rule for the sequence is *divide by 2, multiply by 3*. Since 48 was multiplied by 3 to get 144, find the next term by dividing 144 by 2: 144 ÷ 2 = 72.

20. **Answer choice (a) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms follow the rule *divide by 2*, and the even terms follow the rule *add 4*. Therefore, to find the seventh term, use the odd rule and divide the previous odd term by 2: 6 ÷ 2 = 3. To find the eighth term, add 4 to the previous even term: 8 + 4 = 12. To find the ninth term, divide the seventh term by 2: 3 ÷ 2 = 1.5. Therefore, the next three terms are 3, 12, 1.5.

Sequences with Letters Practice Set 1

1. **Answer choice (d) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms are numbers and follow the rule *add 3*. The even terms are letters and follow the rule *go forwards 2 letters*. Therefore, the next term is a number, so add 3 to 9: 9 + 3 = 12. The next term is a letter, so go up 2 letters forward from E which is G. Therefore, the next two terms are 12, G.

2. **Answer choice (b) is the correct answer.** The rule for the sequence is *go backwards 2 letters*. Therefore, the next letter is two letters backwards from L which is J.

3. **Answer choice (d) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms are numbers and follow the rule *add 5*. The even terms are letters and follow the rule *go backwards 3 letters*. The next term is a letter, so go backwards 3 letters from E which is B.

4. **Answer choice (a) is the correct answer.** The rule for the sequence is *go forwards 3 letters*. Therefore, find the next term by going forwards 3 letters from O which is R.

5. **Answer choice (c) is the correct answer.** The numbers go up by 2, so the next term will have a 10 as the number. The letters go forward 1 letter, then forward 2 letters, then forward 3 letters, so the next term will be 4 letters forward from G: **G**, H, I, J, **K**. K is 4 letters forward from G, so the next term is 10K.

6. **Answer choice (a) is the correct answer.** The first letters follow the rule *go forward 1 letter*, so the first letter of the next term is E. The second letters follow the rule *go backwards 1 letter*, so the second letter of the next term is V. Therefore, the next term is EV.

7. **Answer choice (a) is the correct answer.** The first letters follow the rule *go forward 2 letters*, so the first letter of the next term is M. The second letters follow the rule *go forward 1 letter*, so the second letter of the next term is Q. Therefore, the next term is MQ.

8. **Answer choice (c) is the correct answer.** The numbers follow the rule *add 3*, so the number part of the missing term is 4. The letters follow the rule *go backwards 2 letters*, so the letter part of the missing term is I. Therefore, the missing term is I4.

9. **Answer choice (b) is the correct answer.** The first letters follow the rule *go forward 4 letters*, so the first letter of the next term is S. There is only one answer choice with S as the first letter, so the next term must be SP. The second letters follow the rule *go backward 1 letter*.

10. **Answer choice (d) is the correct answer.** The first letters follow the rule *go forward 2 letters*, so the first letter of the next term is X, and the first letter of the following term is Z. The second letters follow the rule *go backwards 2 letters*, so the second letter of the next term is H, and the second letter of the following term is F. Therefore, the next two terms are XH and ZF.

Sequences with Letters Practice Set 2

1. **Answer choice (a) is the correct answer.** The rule for the pattern is *go backwards 2 letters*. Therefore, the next letter is two backwards from G which is D.

2. **Answer choice (d) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The even terms are numbers and follow the rule *multiply by –2*. The odd terms are letters and follow the rule *go forwards 3 letters*. The next term is a letter, so it is 3 letters forward from H which is K. The next term is a number, so it equals 8 • (–2) = –16. Therefore, the next two terms are K, –16.

3. **Answer choice (b) is the correct answer.** This pattern is an "even odd pattern" which means that the odd terms (the first, third, fifth term, etc) follow a pattern, and the even terms (the second, fourth, sixth term etc) follow a different pattern. The odd terms are numbers and follow the rule *subtract 2*. The even terms are letters and follow the rule *go backwards 1 letter*. The missing term is a letter, so go backwards one from V which is U.

4. **Answer choice (c) is the correct answer.** From A to B, we move forward 1 letter. From B to D, we move forward 2 letters. From D to E, we move forward 1 letter. From E to G we move forward 2 letters. From G to H we move forward 1 letter. Therefore, the rule is *move forward 1 letter, move forward 2 letters*, so the next term is 2 letters forwards from H which is J. The next term is 1 letter forward from J which is K.

5. **Answer choice (c) is the correct answer.** The first letters in each term follow the rule *go forward one letter*, so the first letter of the next term is X. The second letters in each term follow the rule *go forward one letter*, so the second letter of the next term is U. Therefore, the next term is XU.

6. **Answer choice (b) is the correct answer.** The number part of each term follows the rule *add 3*, so the number part of our next term is 17. The letter part of each term is a bit trickier. From Z to Y, we go backwards 1 letter. From Y to W, we go backwards 2 letters. From W to T we go backwards 3 letters. Therefore, to find the letter part of the next term, go backwards 4 letters from T which is P, so the next term is 17P.

7. **Answer choice (a) is the correct answer.** The number part of each term follows the rule *subtract 6*, so the number part of the next term is –20 – 6 = –26. The letter part of each term follows the rule *go backwards 2 letters*, so the letter part of the next term is J. Therefore, the next term is –26J.

8. **Answer choice (d) is the correct answer.** The first letter in each term follows the rule *go forward one letter*, so the first letter in our next term is H. The second letter in each term follows the rule *go backwards 2 letters*, so the second letter in our next term is C. Therefore, our next term is HC.

9. **Answer choice (d) is the correct answer.** The first letter in each term follows the rule *go forward 2 letters,* so the first letter of the next term is two letters forward from I which is K. The second letter in each term follows the rule *go backwards 1 letter*, so the second letter in the missing term is one letter backwards from U which is T. Therefore, the next term is KT.

10. **Answer choice (b) is the correct answer.** The first letter in each term follows the rule *go backwards 3 letters*, so the first letter of the next term is E. The second letter in each term follows the rule *go forward 2 letters*, so the second letter in the next term is T. Therefore, the next term is ET.

Number Sentences Practice Set 1

1. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $3x = 9 \bullet 4 \rightarrow 3x = 36 \rightarrow x = 12$.

2. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 12 \bullet 7 - 5 \rightarrow x = 84 - 5 \rightarrow x = 79$.

3. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $13 + x = 4^2 \rightarrow 13 + x = 16 \rightarrow x = 3$.

4. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $16 - x = \sqrt{9} + 7 \rightarrow 16 - x = 3 + 7 \rightarrow 16 - x = 10 \rightarrow x = 6$.

5. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $\frac{3}{5}x + 18 = 21 + 6 \rightarrow \frac{3}{5}x + 18 = 27 \rightarrow \frac{3}{5}x = 9 \rightarrow x = 15$.

6. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x + 0.5x = 90 \rightarrow 1.5x = 90 \rightarrow x = 60$.

7. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $12 + x = \frac{2}{5} \bullet 50 \rightarrow 12 + x = 20 \rightarrow x = 8$.

8. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 0.1 \bullet 370 + 8 \rightarrow x = 37 + 8 \rightarrow x = 45$.

9. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $54 - \frac{2}{3}x = 5 \bullet 6 \rightarrow 54 - \frac{2}{3}x = 30 \rightarrow -\frac{2}{3}x = -24 \rightarrow x = 36$.

10. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 0.75 \bullet 40 - 25 \rightarrow x = 30 - 25 \rightarrow x = 5$.

11. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $(x - 5) \div 2 = 40 \rightarrow x - 5 = 80 \rightarrow x = 85$.

12. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $60 + x = 0.25 \bullet 36 \rightarrow 60 + x = 9 \rightarrow x = -51$.

13. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $2x = \frac{1}{4} \bullet 48 \rightarrow 2x = 12 \rightarrow x = 6$.

14. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 2 \bullet \frac{2}{3} \bullet 36 \rightarrow x = 2 \bullet 24 \rightarrow x = 48$.

15. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $\frac{7}{10}x = 22 - 8 \rightarrow \frac{7}{10}x = 14 \rightarrow x = 20$.

16. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x^2 = 0.4 \bullet 250 \rightarrow x^2 = 100 \rightarrow x = 10$.

17. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $\frac{5}{6}x = \frac{1}{5} \bullet 125 \rightarrow \frac{5}{6}x = 25 \rightarrow x = 30$.

18. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $0.2x = 3 \bullet 4 \rightarrow 0.2x = 12 \rightarrow x = 60$.

19. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x \div \frac{1}{3} = \frac{6}{7} \rightarrow$ *multiply both sides by ⅓* $\rightarrow x = \frac{2}{7}$.

20. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 4^3 \div 8 \rightarrow x = 64 \div 8 \rightarrow x = 8$.

Number Sentences Practice Set 2

1. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x \div 5 = 15 \bullet 4 \rightarrow x \div 5 = 60 \rightarrow x = 300$.

2. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x + 9 = 11 \bullet 12 \rightarrow x + 9 = 132 \rightarrow x = 123$.

3. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $9^2 - x = 8^2 \rightarrow 81 - x = 64 \rightarrow x = 17$.

4. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $4x = \sqrt{25} - 3 \rightarrow 4x = 5 - 3 \rightarrow 4x = 2 \rightarrow x = 0.5$.

5. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $0.15x + 40 = 80 - 10 \rightarrow 0.15x + 40 = 70 \rightarrow 0.15x = 30 \rightarrow x = 200$.

6. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x - \frac{1}{4}x = 36 \rightarrow \frac{3}{4}x = 36 \rightarrow x = 48$.

7. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x - 5 = \frac{3}{7} \bullet 35 \rightarrow x - 5 = 15 \rightarrow x = 20$. Find twice the number: $2 \bullet 20 = 40$.

8. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 0.6 \bullet 120 + 10 \rightarrow x = 72 + 10 \rightarrow x = 82$.

9. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $82 - 0.5x = 6 \bullet 7 \rightarrow 82 - 0.5x = 42 \rightarrow -0.5x = -40 \rightarrow x = 80$.

10. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = \frac{2}{3} \bullet 27 + 12 \rightarrow x = 18 + 12 \rightarrow x = 30$.

11. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $(x + 8) \div 4 = 32 \rightarrow x + 8 = 128 \rightarrow x = 120$.

12. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $0.25x - 6 = 24 \rightarrow 0.25x = 30 \rightarrow x = 120$.

13. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x \div 3 = 0.3 \bullet 50 \rightarrow x \div 3 = 15 \rightarrow x = 45$.

14. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = \frac{3}{4} \bullet 24 - 20 \rightarrow x = 18 - 20 \rightarrow x = -2$.

15. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $\sqrt{x} = \frac{1}{3} \bullet 48 \rightarrow \sqrt{x} = 16 \rightarrow x = 256$.

16. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x \bullet \frac{4}{5} = \frac{3}{10} \rightarrow$ *divide both sides by* $\frac{4}{5} \rightarrow x = \frac{3}{8}$

17. **Answer choice (c) is the correct answer.** Set up and solve the following equation using x as the unknown number: $\frac{1}{10} \bullet x = \frac{3}{8} \bullet 16 \rightarrow \frac{1}{10} \bullet x = 6 \rightarrow x = 60$.

18. **Answer choice (a) is the correct answer.** Set up and solve the following equation using x as the unknown number: $7 \bullet 0.2x = 63 \rightarrow 1.4x = 63 \rightarrow x = 45$.

19. **Answer choice (b) is the correct answer.** Set up and solve the following equation using x as the unknown number: $x = 5^3 \bullet (17 - 7) \rightarrow x = 5^3 \bullet (10) \rightarrow x = 125 \bullet 10 \rightarrow x = 1250$.

20. **Answer choice (d) is the correct answer.** Set up and solve the following equation using x as the unknown number: $0.6x = 4 \bullet 7 + 2 \rightarrow 0.6x = 28 + 2 \rightarrow 0.6x = 30 \rightarrow x = 50$.

Quantitative Comparisons Practice Set 1

1. **Answer choice (c) is the correct answer.** (A) equals $2 \bullet 2 \bullet 2 = 8$, (B) equals $3 \bullet 3 = 9$, and (C) equals $2 \bullet 3 = 6$. Therefore, (B) > (A) > (C).

2. **Answer choice (b) is the correct answer.** The area of (A) equals $(6 \bullet 16) \div 2 = 96 \div 2 = 48$. The area of (B) equals $4 \bullet 12 = 48$. We cannot find the area of (C) because we don't know the height, but the area is NOT $3 \bullet 16 = 48$. Therefore, the area of (A) is equal to the area of (B) but not equal to the area of (C).

3. **Answer choice (a) is the correct answer.** (A) equals $0.2 \bullet 0.3 = 0.06$, (B) equals $0.2 \bullet 30 = 6$, and (C) equals $0.3 \bullet 20 = 6$. Therefore, (B) is equal to (C) and greater than (A).

4. **Answer choice (c) is the correct answer.** Count the number of hexagons in each figure: (A) equals 6, (B) equals 5, and (C) equals 9. Therefore, (A) + (B) = 6 + 5 = 11 which is greater than (C).

5. **Answer choice (b) is the correct answer.** Change each number into a decimal: (A) = 0.5, (B) = 0.05, (C) = 0.5. Therefore, (A) = (C) ≠ (B).

6. **Answer choice (a) is the correct answer.** Distribute the 3 in (A) to get $3x + 3y$. Therefore, (A) is equal to (C) but not equal to (B).

7. **Answer choice (b) is the correct answer.** (A) = 6, (B) = 18, (C) = 8, and (D) = 4. Therefore, (A) + (C) = 6 + 8 = 14, and (B) – (D) = 18 – 4 = 14, so (A) + (C) = (B) – (D).

8. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so multiply each fraction by each number: (A) = 9, (B) = 7, and (C) = 7. Therefore, (A) is greater than both (B) and (C).

9. **Answer choice (a) is the correct answer.** Find the area of the circle: $A = \pi r^2 \rightarrow A = \pi \bullet 2^2 \rightarrow A = 4\pi$ in^2. Find the circumference: $C = 2\pi r \rightarrow C = 2\pi \bullet 2 \rightarrow C = 4\pi$ in. Therefore, the value of the area is equal to the value of the circumference.

10. **Answer choice (b) is the correct answer.** (A) = 0.24, (B) = 0.24, and (C) = 2.4, so (A) equals (B) and is less than (C).

11. **Answer choice (c) is the correct answer.** Simplify each expression using PEMDAS. (A) = 4 + 2(8 – 3) = 4 + 2(5) = 4 + 10 = 14. (B) = 3(17 – 7) = 3(10) = 30. (C) = 48 ÷ 4 × 2 = 12 × 2 = 24. Therefore, (C) is less than (B) but more than (A).

12. **Answer choice (b) is the correct answer.** The sum of any two sides of a triangle must be greater than the third side. Therefore, 5 + 12 > A which simplifies to A < 17.

13. **Answer choice (a) is the correct answer.** Change each number into a decimal: (A) = 0.8, (B) = 0.8, and (C) = 0.45. Therefore, (A) and (B) are equal and greater than (C).

14. **Answer choice (c) is the correct answer.** For (A), the subtraction must be performed first. Therefore, (A) = $\sqrt{100 - 36} = \sqrt{64} = 8$. (B) = $\sqrt{100} - \sqrt{36} = 10 - 6 = 4$. (C) = 10 – 6 = 4. Therefore, (B) = (C) ≠ (A).

15. **Answer choice (d) is the correct answer.** (A) equals 4 • 4 = 16, (B) equals 3 • 3 = 9, and (C) equals 5 • 5 = 25. Therefore, (A) + (B) = (C) because 16 + 9 = 25.

16. **Answer choice (a) is the correct answer.** (A) is $\frac{3}{4}$ shaded, (B) is $\frac{6}{8} = \frac{3}{4}$ shaded, and (C) is $\frac{4}{6} = \frac{2}{3}$ shaded. Therefore, (A) and (B) are equally shaded and more shaded than (C).

17. **Answer choice (b) is the correct answer.** (A) equals $\sqrt{4} \bullet \sqrt{2} = 2\sqrt{2}$. (B) equals 2 • 2 = 4. (C) cannot be simplified, so it equals $4\sqrt{2}$. Since $\sqrt{2}$ is less than $\sqrt{4}$, it is less than 2. Therefore, (A) is less than 4. Since $\sqrt{2}$ is greater than 1, (C) is greater than 4. Therefore, (A) < (B) < (C).

18. **Answer choice (d) is the correct answer.** Because *b* and *d* are vertical angles, they are congruent. Because *a* and *c* are vertical angles, they are congruent. Therefore, $b - c = d - a$.

19. **Answer choice (c) is the correct answer.** When a number is written in scientific notation, the positive exponent tells us how many times to move the decimal point to the right. (A) = 59,000,000, (B) = 203,000,000, and (C) = 40,000,000. Therefore, (A) is greater than (C) but less than (B).

20. **Answer choice (d) is the correct answer.** The diameter of the circle equals the side length of the square, so the diameter is 10. The radius of a circle is half of the diameter, so the radius is 5. Therefore, $a = 5$ because *a* is a radius.

Quantitative Comparisons Practice Set 2

1. **Answer choice (c) is the correct answer.** (A) = 0.1 • 0.4 = 0.04, (B) = 0.4 • 0.1 = 0.04, and (C) = 0.04 • 1 = 0.04. Therefore, (A), (B), and (C) are all equal.

2. **Answer choice (a) is the correct answer.** Change each number into a decimal. 250% = 2.5 and $\frac{5}{2} = 2\frac{1}{2} = 2.5$. Therefore, (A) = (B) = (C).

3. **Answer choice (a) is the correct answer.** Distribute the 4 in each expression. (A) equals $4x - 4y$, (B) equals $4x - 4y$, and (C) equals $4y - 4x$. Therefore, (A) is equal to (B) and not equal to (C).

4. **Answer choice (d) is the correct answer.** The diameter of the circle is equal to the side length of the square, so the diameter is 6 in.

5. **Answer choice (d) is the correct answer.** (A) equals 4 + 8 = 12. Multiply the exponents for (B), so it equals $2^6 = 64$. Add the exponents for (C), so it equals $2^5 = 32$. Therefore, (A) < (C) < (B).

6. **Answer choice (b) is the correct answer.** Use the pythagorean theorem to find the missing sides: $a^2 + b^2 = c^2$. For (A), $3^2 + 4^2 = A^2$, so A = 5. For (B), $B^2 + 12^2 = 13^2$, so (B) = 5. For

(C), $5^2 + 5^2 = C^2$, so C = $\sqrt{50}$ which is greater than 5. Therefore, (A) equals (B) and is less than (C).

7. **Answer choice (c) is the correct answer.** The area of square (A) equals 5 • 5 = 25. The area of rectangle (B) = 8 • 2 = 16. The perimeter of square (A) = 5 + 5 + 5 + 5 = 20. The perimeter of rectangle (B) = 8 + 8 + 2 + 2 = 20. Therefore, the perimeter of (A) equals the perimeter of (B).

8. **Answer choice (d) is the correct answer.** In math, *of* means multiply, so multiply each fraction by each number: (A) = 10, (B) = 10, and (C) = 12. Therefore, (A) is equal to (B) and less than (C).

9. **Answer choice (c) is the correct answer.** (A) = 60, (B) = 0.06, and (C) = 0.6. Therefore, (B) is less than (C) which is less than (A).

10. **Answer choice (a) is the correct answer.** A and B are vertical angles, so they are equal. Since lines *l* and *m* are parallel, angles B and D are equal because they are corresponding angles. Angle C is not equal to angles A, B, and D, so A = B = D ≠ C.

11. **Answer choice (c) is the correct answer.** Use PEMDAS to simplify each expression. (A) = 10 – 4(6 – 2) = 10 – 4(4) = 10 – 16 = –6. (B) = 36 ÷ 4 × 3 = 9 × 3 = 27. (C) = 16 – (12 – 8) = 16 – 4 = 12. Therefore, (A) is less than both (C) and (B).

12. **Answer choice (b) is the correct answer.** Any exterior angle of a triangle is equal to the sum of the opposite interior angles. A is an exterior angle, and B and C are opposite interior angles. Therefore, A = B + C.

13. **Answer choice (a) is the correct answer.** When you square a square root, the operations cancel each other out, and you are left with the number under the square root. Therefore, (A) = 48. When you multiply square roots, multiply the numbers under the root. Therefore, (B) = $\sqrt{48}$. When you add two of the same square roots, it becomes 2 times that square root. Therefore, (C) = $2\sqrt{24}$. Therefore, (A) ≠ (B) ≠ (C).

14. **Answer choice (d) is the correct answer.** A quarter is worth 25 cents, a dime is worth 10 cents, and a nickel is worth 5 cents. (A) = 2(25) + 10 + 5 = 65 cents. (B) = 5(10) + 5 = 55 cents. (C) = 25 + 10(5) = 75 cents. Therefore, (A) is less than (C), but greater than (B).

15. **Answer choice (c) is the correct answer.** There are 16 total small triangles, 10 of which are shaded and 6 of which are not shaded. Therefore, $\frac{6}{16}$ of the figure is not shaded which simplifies to $\frac{3}{8}$. $\frac{3}{8}$ is more than $\frac{1}{3}$, so more than $\frac{1}{3}$ of the figure is shaded.

16. **Answer choice (a) is the correct answer.** Find the circumference of the circle in (A), using a radius of 8: $C = 2\pi r \rightarrow C = 2\pi \bullet 8 \rightarrow C = 16\pi$. Find the area of the circle in (B): $A = \pi r^2 \rightarrow A = \pi \bullet 4^2 \rightarrow A = 16\pi$. Since we know that (A) and (B) are equal, we can eliminate answer choice (c) and (d). Now we just need to determine if (C) is equal to (A) and (B). For (C), first find the radius. The circumference of a circle equals $2\pi r$, so find the radius by plugging in 8 for C and solving for r: $8 = 2\pi r \rightarrow r = \frac{4}{\pi}$. Since the radius of the circle in (C) does not equal the radius of the circle in (B), the area of the circle in (C) cannot equal the area of the circle in (B). Therefore, (A) = (B) ≠ (C).

17. **Answer choice (b) is the correct answer.** (A) equals 6 • 6 = 36, (B) = 8 • 8 = 64, and (C) equals 14 • 14 = 196. Therefore, (A) plus (B) is less than (C), because 36 + 64 = 100 which is less than 196.

18. **Answer choice (b) is the correct answer.** Count the number of circles in each figure. (A) = 7, (B) = 8, and (C) = 6. Therefore, (A) is not equal to (B) or (C).

19. **Answer choice (d) is the correct answer.** The space diagonal of a cube is any diagonal connecting opposite corners. This is always the longest length connecting any two vertices in a cube. Therefore, since ED is a space diagonal and AE is not, ED is greater than AE.

20. **Answer choice (c) is the correct answer.** When a number is multiplied by a power of 10, the positive exponent tells us how many times to move the decimal point to the right. (A) = 6,000 + 60,000 = 66,000. (B) = 120,000,000. (C) = 12,000,000,000,000. Therefore, (A) is less than both (B) and (C).

Reading

Reading Chapter

Reading Passage 1

1. **Answer choice (b) is the correct answer.** The main point of the passage is to discuss the benefits of silk and why it is a great fabric. The title "The Benefits of Silk" best represents this main idea.

2. **Answer choice (d) is the correct answer.** To "harvest" material from silkworms means to collect it from them.

3. **Answer choice (a) is the correct answer.** In the third paragraph, the passage states that "silk is one of the leading fabrics for bedding and nightwear" because it is soft, light, cool, and breathable.

4. **Answer choice (c) is the correct answer.** The author's main point is to explain why silk is a great fabric, so the author is trying to convince, or persuade, the reader of silk's benefits.

5. **Answer choice (c) is the correct answer.** To "regulate the body's temperature" means to keep the body's temperature at a normal level, which is similar to "maintain."

6. **Answer choice (a) is the correct answer.** In the second paragraph, the passage states that albumen is a naturally-occurring chemical and wonder enzyme that reinvigorates dying skin cells and provides a youthful glow. This means that albumen is an enzyme and it slows down aging in your skin.

7. **Answer choice (d) is the correct answer.** In the last paragraph, it mentions that silk is more expensive than cotton, so it is not inexpensive. Answer choice (a) is mentioned in paragraph 1. Anser choice (b) is mentioned in paragraph 1. Answer choice (c) is mentioned in paragraph 3.

8. **Answer choice (a) is the correct answer.** The first paragraph makes the argument that "silk is a much better fabric than cotton." It does not explain one benefit of silk in detail, so answer choice (b) is incorrect. It does not talk about the similarities and differences between silk and cotton, so answer choice (c) is incorrect. It does not say that cotton is better than silk, so answer choice (c) is incorrect.

9. **Answer choice (b) is the correct answer.** In the first paragraph, the passage states, "Given silk's denser, lighter material, it is easier for the fabric to regulate the body's temperature."

10. **Answer choice (d) is the correct answer.** The passage starts by making the claim that silk is a better fabric than cotton. It then provides reasons as to why this is true: silk regulates temperature, it contains albumen which slows aging, it's soft and light, and it's durable.

Reading Passage 2

1. **Answer choice (d) is the correct answer.** The main purpose of the passage is to tell the story about how construction workers discovered a mysterious stone, and how people are still trying to understand the mystery of the stone. It doesn't imply that people should stop trying to solve mysteries, so answer choice (a) is incorrect. It doesn't say that scientists' theories are often false, so answer choice (b) is incorrect. While the construction workers' discovery was unexpected, this was not the main point of the passage, so answer choice (c) is incorrect.

2. **Answer choice (b) is the correct answer.** The "cryptic" carvings on the stone were being questioned, so they were probably confusing or "obscure."

3. **Answer choice (a) is the correct answer.** Archaeology is the study of human history through artifacts and remains, so a story about a mysterious stone that was found would fit in an archaeology magazine.

4. **Answer choice (b) is the correct answer.** The last two paragraphs discuss how there are many theories about the stone, but a lot of questions are still unanswered.

5. **Answer choice (c) is the correct answer.** To "unearth" the artifact means to uncover it or dig it out of the clay.

6. **Answer choice (d) is the correct answer.** The first two sentences of the second paragraph say that a group of construction workers discovered the stone.

7. **Answer choice (c) is the correct answer.** The second sentence of the second paragraph says the workers were "digging in the clay near the shore of the lake."

8. **Answer choice (b) is the correct answer.** While the stone was shaped like an egg, it didn't have an egg carved on it. The other three carvings are mentioned in paragraph three.

9. **Answer choice (d) is the correct answer.** There are no concrete facts in the first paragraph. The questions in the first paragraph are rhetorical, the situation presented about discovering a strange, dark, egg-shaped stone is hypothetical, and the imagery about the strange, dark, egg-shaped stone is descriptive.

10. **Answer choice (a) is the correct answer.** The stone was discovered in 1872 which is over 100 years ago, and people have been coming up with theories about it "ever since its discovery" as stated in paragraph 4.

Reading Passage 3

1. **Answer choice (c) is the correct answer.** The passage discusses Tulip Fever, which was an economic event that happened in the Netherlands. The passage explains what Tulip Fever was, why it happened, and how it eventually came to an end.

2. **Answer choice (d) is the correct answer.** The first sentence of the second paragraph says, "The world's wealthiest and the poorest descended upon local Dutch taverns to buy and sell the prized flowers." This shows that people of various socioeconomic backgrounds purchased tulips.

3. **Answer choice (a) is the correct answer.** In the third paragraph, it says, "The trades were considered gambling and thus unenforceable under Dutch law."

4. **Answer choice (d) is the correct answer.** The last sentence of the first paragraph says, "...and because they could withstand the harsh winters, mania ensued." "Mania ensued" means people were going crazy over purchasing tulips because they would survive the winter.

5. **Answer choice (a) is the correct answer.** The author compares Tulip Fever to other speculative markets such as the dot-com bubble, the subprime mortgage crisis, and the current bitcoin exchanges. While the author mentions the Great Recession, he/she does not compare it to Tulip Fever. He/she mentions the Great Recession because it was a result of the mortgage crisis.

6. **Answer choice (c) is the correct answer.** Tulip Fever is described as a time period in the Netherlands where people were buying and selling tulips at a fast rate with high price inflation. This is the same as a financial bubble which is an economic cycle where prices quickly rise.

7. **Answer choice (c) is the correct answer.** The passages says, "Because tulips only bloomed for one week in April and May, most sales were simply for the dormant bulbs in the ground or for future ownership of the flower at the end of the season." It wouldn't make sense to buy dead flowers or bulbs because those won't grow, so answer choice (a) is incorrect. The bulbs weren't flourishing because flourishing means growing, but the bulbs were purchased before

the growing season. While tulips were expensive, dormant doesn't mean expensive. Dormant bulbs means inactive bulbs that would later grow.

8. **Answer choice (b) is the correct answer.** The passages says, "Because tulips only bloomed for one week in April and May, most sales were simply for the dormant bulbs in the ground or for future ownership of the flower at the end of the season."

9. **Answer choice (b) is the correct answer.** The first sentence of the third paragraph says that "the bubonic plague brought trading to a halt."

10. **Answer choice (d) is the correct answer.** The passage says the phrases "Tulip Fever" and "Tulip Mania" are used to describe speculative markets like the dot-com bubble, bitcoin, and the mortgage crisis. These are all unpredictable markets because prices were rising at such a fast pace.

Reading Passage 4

1. **Answer choice (b) is the correct answer.** In the second sentence of the third paragraph, the passage states, "Stress can lead to physical symptoms such as headaches, stomachaches, frequent illness, and sleep issues." While the passage does mention anxiety and depression as symptoms of stress, those are mental symptoms, not physical symptoms.

2. **Answer choice (a) is the correct answer.** In the third sentence of the first paragraph, the passage states, "In this generation, students have more responsibility and higher academic standards to live up to, which ultimately leads to many students feeling overwhelmed by the pressure." This implies that school is more stressful for this generation which means it has gotten more stressful over time.

3. **Answer choice (d) is the correct answer.** In the second to last sentence of the passage, it says, "This [unwinding after a long study session] can be done by reading a good book, spending a few hours off the Internet, or by working out." It mentions "working out" which is exercising.

4. **Answer choice (b) is the correct answer.** The passage says the "arduous study sessions stretch out and further intensify …" meaning the difficult or strenuous study sessions. The word "intensifies" gives you a clue that "arduous" is negative.

5. **Answer choice (b) is the correct answer.** The second paragraph talks about how people praise over-working and all-nighters and that people associate the feeling of accomplishment

with stress. It goes on to say that "exhaustion and burnout" are "symbols of dedication." This shows that some people view over-working and being exhausted as something to be proud of.

6. **Answer choice (c) is the correct answer.** The author does not define any terms throughout the passage. The author presents data at the end of the second paragraph by citing a recent study. The author provides suggestions on how to relieve stress in the last paragraph. An example of an opinion the author states is, "...it is becoming incredibly important for students to unwind after a long study session." The author goes on to give his/her opinion about ways to reduce stress.

7. **Answer choice (c) is the correct answer.** The second paragraph talks about how people praise over-working and all-nighters and that people associate the feeling of accomplishment with stress. It goes on to say that "exhaustion and burnout" are "symbols of dedication."

8. **Answer choice (d) is the correct answer.** The passage says there are "detrimental side effects" to overworking yourself. It goes on to talk about negative side effects of stress, so detrimental means harmful.

9. **Answer choice (a) is the correct answer.** The second paragraph talks about how people praise over-working and all-nighters.

10. **Answer choice (d) is the correct answer.** The author discusses how students are under a lot of stress, how too much stress can be harmful for students, why it's important for students to reduce stress, and tips for how to reduce stress. Therefore, the main purpose of the passage is to encourage students to reduce their stress and explain why it's important to do so.

Reading Passage 5

1. **Answer choice (a) is the correct answer.** The passage says, "The banana as we know it is under imminent danger." In the last paragraph, the passage states, "Now, food scientists and genetic researchers around the world are racing against the clock to generate solutions before the next potential outbreak." This shows that bananas are under approaching danger and there isn't much time to save them.

2. **Answer choice (d) is the correct answer.** The passage says Cavendish bananas are all the same, or monoculture in paragraph 2. This means they are of the same genetic species or variety.

3. **Answer choice (c) is the correct answer.** In paragraph 2, the passage states, "...while there are over 1,000 species of wild bananas…"

4. **Answer choice (d) is the correct answer.** In the third paragraph, it mentions that the Gros Michel banana was completely wiped out by Fusarium Wilt.

5. **Answer choice (c) is the correct answer.** In the first paragraph, the passage says that bananas are in imminent danger. In the last paragraph, the passage says that scientists and researchers are racing to find a solution before another outbreak. This shows that the main purpose of the passage is to illustrate the crisis we have with bananas.

6. **Answer choice (d) is the correct answer.** In the first paragraph, the passage says that bananas are in imminent danger. In the last paragraph, the passage says that scientists and researchers are racing to find a solution before another outbreak. This shows that bananas are in danger of being wiped out by fungal diseases, which is similar to saying they are "under siege" or attack.

7. **Answer choice (b) is the correct answer.** In paragraph 2, the passage states, "Unlike other fruits, such as apples or oranges, the Cavendish banana is sterile and cannot reproduce on its own."

8. **Answer choice (b) is the correct answer.** In the third paragraph, the passage says that a benefit of being a cloned fruit is being able to "be shipped farther distances at lower prices."

9. **Answer choice (a) is the correct answer.** At the end of the fourth paragraph, the passage says, "The Cavendish banana was simply chosen as its [Gros Michel's] replacement because of its resistance to that particular strain of disease." The particular strain the sentence is referring to is Fusarium Wilt, as stated earlier in the paragraph.

10. **Answer choice (b) is the correct answer.** In the last paragraph, the passage states, "Now, food scientists and genetic researchers around the world are racing against the clock to generate solutions before the next potential outbreak." The "potential outbreak" is referring to an outbreak of fungal disease since that is what wiped out the Gros Michel banana.

Reading Passage 6

1. **Answer choice (a) is the correct answer.** This passage is talking about the real history of the people of North Sentinel Island, so it would be found in a history textbook.

2. **Answer choice (c) is the correct answer.** In the fourth paragraph, the passage states that the Indian government "prohibits anyone from coming within five nautical miles of the island," and that this is "not only to protect foreigners, but more so to protect the people." It goes on

to say that the population's immune systems are compromised and outside illnesses can be deadly.

3. **Answer choice (c) is the correct answer.** The second paragraph states, "First contact with the island was made in the late 1800's…" The late 1800s is the late 19th century.

4. **Answer choice (b) is the correct answer.** The passage discusses the people of North Sentinel Island. It talks about how they live, who has made contact with them, why they are disconnected and isolated, and how it impacts them. The main purpose is to provide information about the Sentinelese people. These people are a unique cultural group because they live isolated from the rest of the world.

5. **Answer choice (c) is the correct answer.** In the second paragraph, the passage states that because "the island lacked valuable resources, the British largely left the Sentinelese people to themselves …"

6. **Answer choice (a) is the correct answer.** The passage states that "stranded ships, fishing boats, and illegal hunters have succumbed to the arrows of the Sentinelese people should they get too close." The Sentinelese people were trying to protect themselves by shooting intruders with arrows, so the intruders probably surrendered to the arrows.

7. **Answer choice (b) is the correct answer.** The last sentence of the passage says that the Sentinelese people stay disconnected out of biological necessity for survival.

8. **Answer choice (d) is the correct answer.** The second paragraph talks about how the British kidnapped some of the Sentinelese people. The third paragraph goes on to say, "The contact, however, was enough for the local Sentinelese tribe to fear foreigners."

9. **Answer choice (c) is the correct answer.** The passage says the Sentinelese people's immune systems were compromised and goes on to say that "even the most common illnesses, like the cold or flu, can be potentially fatal to the average citizen." This shows that a compromised immune system means a weakened immune system that is easily harmed by illnesses.

10. **Answer choice (b) is the correct answer.** The passage states that "stranded ships, fishing boats, and illegal hunters have succumbed to the arrows of the Sentinelese people should they get too close." We can assume that the arrows were shot by the Sentinelese people and injured or killed people.

Reading Passage 7

1. **Answer choice (d) is the correct answer.** The third paragraph talks about how every morning Peter would try and talk to Megan, but ultimately become too scared. At the end of the third paragraph, the passage states, "And every morning his fear of rejection would always get the best of him."

2. **Answer choice (c) is the correct answer.** Throughout the story, Peter is afraid of being rejected and failing when talking to Megan.

3. **Answer choice (b) is the correct answer.** At the end of the second paragraph, the passage states, "But not Megan; she was the type of person that didn't seem to care what anyone else thought." This shows Megan was confident and self-assured.

4. **Answer choice (d) is the correct answer.** A metaphor is a figure of speech that describes something in a way that isn't literally true. In the line "her eyes were pools of clear blue water," her eyes were being compared to pools of clear blue water, even though they were not literally pools of clear blue water.

5. **Answer choice (a) is the correct answer.** The ending is ironic because on the day Peter finally decides to go into the coffee shop, Megan is gone.

6. **Answer choice (c) is the correct answer.** At the end of the fourth paragraph, the passage says that "Megan moved back east to live with her parents."

7. **Answer choice (c) is the correct answer.** In the second paragraph, the passage states, "But it wasn't her beauty that was most captivating to Peter. The way she connected with people was effortless--something peter was envious of.

8. **Answer choice (c) is the correct answer.** Peter was normally too scared to talk to Megan. However, on the last day in the story, Peter was confident and went to talk to him. This behavior was surprising because he was more confident than normal.

9. **Answer choice (a) is the correct answer.** In the second paragraph, the passage states, "But it wasn't her beauty that was most captivating to Peter. The way she connected with people was effortless--something Peter was envious of." It then goes on to say that Peter was insecure but Megan seemed to not care what anyone thought. This shows that Peter was envious of her ability to connect to people and her confidence.

10. **Answer choice (b) is the correct answer.** The line "She had fiery red hair that cascaded down her back; her eyes were pools of clear blue water, framed by long curly lashes," is an example of descriptive imagery.

Reading Passage 8

1. **Answer choice (a) is the correct answer.** Foreshadowing is when something is a warning or indication of future events. The line, "Unfortunately, Tearful did not heed her mother's words of wisdom, and kept on crying," warns us that something bad is going to happen to Tearful since she continued to cry.

2. **Answer choice (b) is the correct answer.** In the 8th paragraph, Tearful says that she cannot swim and she will die if she has to stay in her puddle of tears.

3. **Answer choice (d) is the correct answer.** While the passage was humorous, the purpose was to teach a lesson. In the last paragraph, Tearful stops crying and her pond grew smaller and smaller. She "realized how much easier her life would be without all those tears." The lesson is that sometimes if you stop focusing on the negatives, things will get easier.

4. **Answer choice (a) is the correct answer.** Tearful was annoyed that the frog was following her in the beginning. However, by the end of the story he became helpful because he helped Tearful stop crying.

5. **Answer choice (b) is the correct answer.** The passage says, "Tearful did not heed her mother's words of wisdom, and kept on crying." This means Tearful did not listen or pay attention to her mother's words of wisdom.

6. **Answer choice (c) is the correct answer.** The first sentence of the second paragraph says, "One morning she was crying as she walked to school, when she noticed a frog hopping along beside her."

7. **Answer choice (c) is the correct answer.** About halfway through the story the frog says, "I have wished for something which I cannot use now that I have it. Your tears are too salty."

8. **Answer choice (d) is the correct answer.** At the end of the second paragraph, after the frog is asked why he is following Tearful, he responds by saying, "Because you will soon form a pond around you with your tears, and I have always wanted a pond to myself.

9. **Answer choice (a) is the correct answer.** A hyperbole is an exaggerated statement. When Tearful's mother tells her "she would melt away in tears," that is an exaggeration because Tearful is not literally going to melt away in her tears.

10. **Answer choice (b) is the correct answer.** The passage says the frog hopped out of the pond and made a "terrible grimace." The frog jumped out of the pond because the water was too salty, so he was angry. The words "terrible" and "angry" tell us that a grimace is a negative word. A grimace is an ugly facial expression that expresses disgust. This is the same as a scowl.

Reading Passage 9

1. **Answer choice (b) is the correct answer.** The passage talks about the Cold War and discusses who was fighting, why the war happened, and the impact of the war. The main purpose of the passage was to provide information about the war, or give a brief background of the war.

2. **Answer choice (d) is the correct answer.** The passage says that the two sides in the war have always held an acrimonious relationship. Since they were fighting against each other, we know acrimonious is a negative word. The passage is saying that the two sides held an unfriendly relationship.

3. **Answer choice (a) is the correct answer.** The passage is providing a brief background on the Cold War which is a historical event, so it would be found in a history textbook.

4. **Answer choice (d) is the correct answer.** In the second to last paragraph, the passage states, "The Nuclear Test-Ban Treaty of 1963 brought an end to the terror everyday citizens felt at home, work, and school." Earlier in the passage, it is stated that citizens were scared of nuclear bombs. Therefore, we can assume The Nuclear Test-Ban Treaty restricted the use of nuclear weapons. The word "ban" also means to prohibit which provides a clue to the answer.

5. **Answer choice (b) is the correct answer.** In the third paragraph, the passage says that people were "in fear of an atomic bomb dropping at any moment." At the end of that paragraph, it says that the Cold War was one of the most fearful times in U.S. history even though civilian's lives were never in danger.

6. **Answer choice (a) is the correct answer.** The passage says that the Cold War started in 1945 and ended in 1991. This means it lasted more than 40 years.

7. **Answer choice (a) is the correct answer.** The second sentence of the passage states, "The U.S. led Western Powers wanted to spread democracy and eliminate communism throughout the world…"

8. **Answer choice (b) is the correct answer.** The second line of the third paragraph says that "schools held emergency duck and cover drills."

9. **Answer choice (c) is the correct answer.** In the fourth paragraph, it mentions that Germany joined the Eastern powers. It also states that the U.S. helped fight for democracy in the Dominican Republic, Grenada, and Cuba.

10. **Answer choice (c) is the correct answer.** The passage says the wars became "more protracted and bloody," and then goes on to mention the Vietnam war which lasted for years. Protracted means lasting very long or drawn out.

Reading Passage 10

1. **Answer choice (a) is the correct answer.** The passage is providing instructions on how to make the perfect grilled cheese, so the title "Perfection in a Pan" best expresses the main idea.

2. **Answer choice (b) is the correct answer.** The last line of the third paragraph states, "If you want to experiment with other types of cheese, make sure to choose cheese that easily melts--that means no parmesan or feta."

3. **Answer choice (b) is the correct answer.** The third paragraph talks about choosing your cheese. The fourth paragraph follows by talking about the importance of spreading mayo on the bread.

4. **Answer choice (d) is the correct answer.** In the fourth paragraph, the author mentions that it is imperative to spread mayo on the bread. Imperative means extremely important, so we can assume that if you miss this step, you will not make a perfect grilled cheese.

5. **Answer choice (d) is the correct answer.** The passage states that using mayo is imperative because it adds extra flavor. This means it is important or crucial.

6. **Answer choice (b) is the correct answer.** The passage is providing step by step instructions to create the perfect grilled cheese.

7. **Answer choice (b) is the correct answer.** The last paragraph says to cook your grilled cheese for 3 minutes on both sides over low heat which is a total of 6 minutes.

8. **Answer choice (a) is the correct answer.** The third paragraph states, "if you want an extra kick, add a slice of pepper jack."

9. **Answer choice (c) is the correct answer.** The passage is about cooking and the tone is informal, so it was most likely written by a cooking blogger.

10. **Answer choice (a) is the correct answer.** The passage has sarcasm and humor. For example, the last line of the first paragraph says, "If you accidentally slice your grilled cheese into rectangular halves, you may as well throw the whole thing away." This is sarcastic and humorous because the author is joking: he or she does not actually want you to throw away your grilled cheese if you slice it the wrong way.

Reading Passage 11

1. **Answer choice (a) is the correct answer.** China Doll was the last china doll in the store, but she eventually got bought by a little girl. She waited a long time, but eventually had a happy ending.

2. **Answer choice (c) is the correct answer.** In the third paragraph, the passage says that wax dolls have eyes that open and close. The passage did not state that China Doll had eyes that opened and closed.

3. **Answer choice (b) is the correct answer.** The third paragraph says, "Christmas time was busy, and more people meant more purchases." From this, we can assume that China Doll was put out at Christmas time because she was more likely to be purchased.

4. **Answer choice (a) is the correct answer.** In the second and third paragraphs, the passage mentions that while China Doll had painted on hair, the wax dolls had real hair and were more popular.

5. **Answer choice (d) is the correct answer.** A simile is a comparison using the words "like" or "as." The phrase "her lips and cheeks were as read as a cherry" compares China Doll's lips and cheeks to a cherry using the word "as."

6. **Answer choice (b) is the correct answer.** At the end of the fifth paragraph, the girl who purchased China Doll says, “My grandmother has one just like this, girls, and I have asked her many times to give it to me to make a French pincushion, but she will not let me have it.”

7. **Answer choice (c) is the correct answer.** The fourth paragraph says that children no longer came to the store because they went to the big city for their toys, meaning they went somewhere else to buy toys.

8. **Answer choice (d) is the correct answer.** The first sentence of the second paragraph says, “Long, long ago there were other China dolls, but one by one some little girl had carried them away and she was left alone. This tells us that China Doll was the last china doll in the store.

9. **Answer choice (d) is the correct answer.** The last paragraph says that the girl who bought China Doll put ribbons over her arms and attached boxes to the ribbon. She then used the boxes as pincushions.

10. **Answer choice (a) is the correct answer.** In the third to last paragraph, the passage says a tally-ho stopped in front of the store. In the second to last paragraph, the passage says the girl who bought China Doll took her away on the tally-ho. This tells us that tally-ho is a method of transportation.

Reading Passage 12

1. **Answer choice (a) is the correct answer.** Personification is when you give a personal or human characteristic to something non-human. In the line, “The tiger listened closely,” the human characteristic assigned to the tiger was “listened closely.”

2. **Answer choice (b) is the correct answer.** The first paragraph states, “This woodman was an only son, the sole support of an old mother.”

3. **Answer choice (a) is the correct answer.** The first paragraph states, “But Li-neng was no longer afraid of tigers.” Later in the paragraph, we see that Li-neng is not afraid of the tiger. He confidently talked to him, captured him, and brought him to the court house. Since he showed no fear when capturing the tiger, we can describe Li-neng as brave.

4. **Answer choice (d) is the correct answer.** In the first paragraph, the passage states that the tiger was “standing at the temple gate,” so that part of the story took place outside a temple. In the second paragraph, Li-neng takes the tiger “through the crowded streets of the city, into

the courtroom," so that part of the story took place throughout a city and inside a courtroom. The passage never mentioned anything about being deep in the jungle.

5. **Answer choice (b) is the correct answer.** The first paragraph states, "For some reason or other you have acted the coward, and remained in hiding. This has been the cause of my beating." From this line, we can assume that the tiger had been hiding, so Li-neng could not catch him, and this caused his beatings.

6. **Answer choice (a) is the correct answer.** A simile is a comparison using the words "like" or "as." The phrase "everyone became quiet as a grave" compares the quietness to a grave using the word "as."

7. **Answer choice (c) is the correct answer.** In the first paragraph, Li-neng says to the tiger, "You are the same fellow that carried off the woodman last month, aren't you? … Now this poor woman has reported you to the mandarin, who, in turn, has had a warrant drawn up for your arrest."

8. **Answer choice (c) is the correct answer.** Third person is when someone is narrating about other people. Pronouns such as "he," "she," and "they" are used in the third person. In this story, a narrator is writing about Li-neng and the tiger.

9. **Answer choice (b) is the correct answer.** At the end of the story, the tiger was taken into the courtroom. The last sentence says that the "judge rapped on the table as s signal that all was ready for the trial." This shows us that the next part of the story would probably be the trial, and the judge would determine a punishment for the tiger.

10. **Answer choice (d) is the correct answer.** In the second paragraph, it says that the tiger listened closely to Li-neng and "seemed willing and ready to be captured." The tiger was not fighting back, so he was compliant and was obeying Li-neng.

Reading Passage 13

1. **Answer choice (a) is the correct answer.** Personification is when you give a personal or human characteristic to something non-human. The line personifies Molly's heart by saying it was somersaulting.

2. **Answer choice (c) is the correct answer.** The first line of the passage states, "Molly fell in love with Hunter Gretsky the first day she saw him." It continues by talking about his physical features that Molly likes in detail. From this, we can assume that Molly is most attracted to Hunter's physical features.

3. **Answer choice (d) is the correct answer.** For this question, use process of elimination. "Good things come to those who wait," does not fit with the passage because Molly did not get anything good at the end of the story. While she did find Hunter's profile online, she didn't actually get to talk to him or meet him again. "Love conquers all," does not fit the passage because Molly and Hunter were not in love and there was no triumph in the story. "Nothing beats a failure but a try," does not fit with the passage because Molly didn't really try anything with Hunter. When she moved away, she was too afraid to talk to him.

4. **Answer choice (c) is the correct answer.** A simile is a comparison using the words "like" or "as." The phrase "each step she had taken away from him felt like a stab to her heart" compares the steps she took to a stab in the heart using the word "like."

5. **Answer choice (b) is the correct answer.** In the second paragraph, Hunter asks Molly for her name. Molly thinks about all of the great things that could come from talking to Hunter: they would hold hands, giggle together, and pass love notes. However, the passage then states, "But the moment passed. At that age, Molly was still coming to grips with always being the new girl …" This shows us that Molly was worried she would have to move away and be the new girl again.

6. **Answer choice (b) is the correct answer.** For this question, use process of elimination. We can't assume Hunter was in love with Molly because the only interaction they had was him asking for her name, so answer choice (a) is incorrect. Since Molly and Hunter spoke at the dance, answer choice (c) is incorrect. Hunter and Molly had barely spoken, so it wouldn't make sense that he was sad she moved away. We also don't know anything about Hunter's feelings towards Molly, so answer choice (d) is incorrect. We are left with answer choice (b). Hunter probably didn't know Molly liked him because Molly never told him.

7. **Answer choice (b) is the correct answer.** The first paragraph says that it "was the sophomore homecoming" when Molly first saw Hunter. In the third paragraph, it says Molly rejoined her friends on the dance floor. From these lines, we can infer that the beginning of the story took place at a high school dance.

8. **Answer choice (a) is the correct answer.** Narrative writing is writing that tells a story. Descriptive writing uses details to describe something. The passage tells the story about Molly and Hunter meeting and uses descriptive details to describe Hunter's physical appearance.

9. **Answer choice (d) is the correct answer.** In the last paragraph, the passage says that Hunter's profile will pop up and that Molly could add him as a friend. From this, we can assume that Molly saw Hunter on a social media website.

10. **Answer choice (c) is the correct answer.** The ending of the story is positive because after all of these years thinking about Hunter, Molly finally sees him on a social media website. The only positive answer choice is "hopeful."

Reading Passage 14

1. **Answer choice (b) is the correct answer.** In the beginning of the story, Ko-Ko was afraid of the monster because the sailors had warned him of a giant, ugly monster. However, throughout the story, Ko-Ko learns to trust the monster because he is kind and helpful. This shows that Ko-Ko should not have judged the monster by his appearance: don't judge a book by its cover.

2. **Answer choice (d) is the correct answer.** In the last sentence of the second paragraph, it states that the sailors thought the monster was cruel because he was hideous.

3. **Answer choice (a) is the correct answer.** The beginning of the story takes place in the ocean: Ko-Ko was floating on a plank in the ocean when the sea monster found him. Later in the story, Ko-Ko would take the items the sea monster gave him to a cave located on an island. This shows that the story took place in the ocean, in a cave, and on an island. The story never took place on a sailing ship.

4. **Answer choice (a) is the correct answer.** While the monster flashed his eyes at the sailors to show them to safety, the passage does not say the monster did this for Ko-Ko. The monster let Ko-Ko ride on his back and transported him to safety in the third paragraph. The monster brought Ko-Ko food and supplies in the last three paragraphs.

5. **Answer choice (c) is the correct answer.** A simile is a comparison using the words "like" or "as." The phrase "he opened his mouth and it was as spacious as a cave" compares his mouth to a cave using the word "as."

6. **Answer choice (b) is the correct answer.** In the second paragraph, it states, "...the sea monster had really been a friend to them, showing them the rock in the storm by flashing his eyes…" The sea monster flashed his eyes during the storm, showing the sailors the rocks so they could get to safety.

7. **Answer choice (c) is the correct answer.** The story is told by a narrator, which is a third party.

8. **Answer choice (a) is the correct answer.** The monster was very helpful to the sailors and Ko-Ko. The monster flashed his eyes to show the sailors to safety, he brought Ko-Ko to safety, and he continuously brought Ko-Ko useful items and food.

9. **Answer choice (b) is the correct answer.** In the beginning of the story, Ko-Ko was scared of the monster. In the third paragraph, the passage says, "...when he saw the monster he was afraid…" Later in the passage, Ko-Ko starts to trust the monster. He gets on his back, he goes inside of his mouth, and the monster ends up helping him.

10. **Answer choice (a) is the correct answer.** In the fourth paragraph, Ko-Ko contemplated going inside of the monster's mouth. He eventually says, "It must be for my own good, for he could easily swallow me if he wished, without waiting for me to walk in." This means that Ko-Ko thought if the monster really wanted to hurt him or swallow him, he would have already done so.

Reading Passage 15

1. **Answer choice (a) is the correct answer.** The passage provides information about Chinese culture and explains the impact that China has made on the modern world.

2. **Answer choice (b) is the correct answer.** The second sentence of the passage states, "Its written history dates back as far as 4,000 years ago."

3. **Answer choice (b) is the correct answer.** The passage states, "The Chinese additionally invented many ubiquitous items that we used today, such as silk, wheelbarrows, kites, umbrellas, and even noodles." The items described are not random, useless, or expensive. They are common and universal items.

4. **Answer choice (d) is the correct answer.** The last sentence of the first paragraph says, "It [China] is also considered the only surviving ancient civilization, outlasting the likes of the Roman, Babylonian, and Egyptian empires." This tells us that the Babylonian empire no longer exists.

5. **Answer choice (c) is the correct answer.** The second sentence of the second paragraph states, "Ancient China is credited for the Four Great Inventions: gunpowder, paper, the printing press, and a compass." Wheelbarrows are not mentioned as one of the Four Great Inventions.

6. **Answer choice (a) is the correct answer.** The phrases “ravenous appetite” and “eager to feed” are metaphors comparing the Chinese people’s love of new technology to an appetite, and comparing Western companies' desire to create more technology to feeding that appetite.

7. **Answer choice (a) is the correct answer.** The second paragraph talks about the contributions of ancient China by discussing the Four Great Inventions of Ancient China and other items that Ancient China created, such as wheelbarrows and kites.

8. **Answer choice (c) is the correct answer.** The passage states, “China has become the world’s manufacturer, fabricating everything from plastic bottles or plush toy animals for global consumers.” China is called the “world’s manufacturer” because they produce and export many useful items to countries around the world.

9. **Answer choice (b) is the correct answer.** The passage states, “China has become the world’s manufacturer, fabricating everything from plastic bottles or plush toy animals for global consumers.” In this sentence, fabricating means creating or manufacturing.

10. **Answer choice (c) is the correct answer.** The last paragraph of the passage shows that the author thinks China will continue to benefit from Western cultures. It states that “China will remain open to accept more contributions from the ‘newer’ countries and cultures that exist.”

Reading Passage 16

1. **Answer choice (d) is the correct answer.** In the last paragraph, it states that the platypus is a unique mammal because it has the reptile-like ability to lay eggs.

2. **Answer choice (d) is the correct answer.** The main point of the passage is to talk about the discovery of the platypus and explain why the platypus is a unique animal. The title “The peculiar Discovery of a Peculiar Animal” best fits this main idea. The passage is not about beavers, ducks, and otters, so answer choice (a) is incorrect. The platypus was not actually a hoax, so answer choice (b) is incorrect. The platypus is not the world’s only egg laying mammal because echidnas are also egg laying mammals, so answer choice (c) is incorrect.

3. **Answer choice (a) is the correct answer.** In the last sentence of the second paragraph it is stated that the platypus’s tail “stores fat that helps prevent the animal from starving.”

4. **Answer choice (b) is the correct answer.** The passage states that the platypus has “a bill with sensitive receptors that can detect the slightest changes in water movement.” Receptors are things that detect or sense something, so “sensors” is the best answer.

5. **Answer choice (a) is the correct answer.** In the last paragraph of the passage, it is stated that reptiles lay eggs. Since a lizard is a reptile, we know it can lay eggs.

6. **Answer choice (b) is the correct answer.** In the last paragraph of the passage, it is stated that the platypus and echidnas are the only two mammals that can lay eggs.

7. **Answer choice (c) is the correct answer.** The passage says that scientists thought the first platypus was a hoax. It then goes on to say, "It naturally excites the ideas of some deceptive preparation by artificial means." The word "deceptive" gives us a hint that a hoax is a joke or a prank intended to deceive people.

8. **Answer choice (d) is the correct answer.** The first paragraph states that the platypus has "a bill with sensitive receptors that can detect the slightest changes in water movement."

9. **Answer choice (c) is the correct answer.** Even though Shaw initially thought the platypus was a prank, he continued to examine the platypus and eventually discovered that it is a real creature. He also discovered unique characteristics of the platypus. Because he didn't give up, he is a determined and persistent scientist.

10. **Answer choice (a) is the correct answer.** The author starts the third paragraph by saying, "While all of the features discussed above are indeed interesting, what makes platypuses the most fascinating creatures is their ability to lay eggs."

Vocabulary Set 1

1. **Answer choice (d) is the correct answer.** A sarcastic remark is meant to ridicule, or mock, something.

2. **Answer choice (b) is the correct answer.** To amplify sound means to make something louder, or to intensify the sound.

3. **Answer choice (a) is the correct answer.** A prominent author is a very well known, or famous, author.

4. **Answer choice (c) is the correct answer.** To forego plans means to give up, cancel, or forfeit plans.

5. **Answer choice (c) is the correct answer.** A heedful driver is a careful, or cautious, driver.

6. **Answer choice (b) is the correct answer.** A flamboyant outfit is very loud and showy.

7. **Answer choice (a) is the correct answer.** A stern measure is a serious, or strict, measure.

8. **Answer choice (c) is the correct answer.** To send a surrogate means to send a replacement, or a substitute.

9. **Answer choice (d) is the correct answer.** A commendable achievement is one that deserves praise, or one that is admirable.

10. **Answer choice (d) is the correct answer.** A hostile remark is a mean, or antagonistic, remark.

11. **Answer choice (c) is the correct answer.** A minor grievance is a minor complaint or a gripe.

12. **Answer choice (b) is the correct answer.** To solidify plans means to make them solid, confirm them, or cement them.

13. **Answer choice (a) is the correct answer.** A depraved leader is an immoral, or corrupt, leader.

14. **Answer choice (a) is the correct answer.** A malleable material is one that is easily molded, or pliable.

15. **Answer choice (d) is the correct answer.** To renounce rights means to abandon, or give up, your rights.

16. **Answer choice (c) is the correct answer.** A tedious assignment is a mundane, routine, or boring assignment.

17. **Answer choice (b) is the correct answer.** To contrive a plot means to come up with, or devise, a plot.

18. **Answer choice (a) is the correct answer.** To contemplate a decision means to think about it, or ponder it.

19. **Answer choice (b) is the correct answer.** To accentuate your eyes means to bring out, or highlight, your eyes.

20. **Answer choice (d) is the correct answer.** A rigid plan is a plan set in stone, or one that is inflexible.

Vocabulary Set 2

1. **Answer choice (d) is the correct answer.** A microscopic specimen is a tiny, or miniscule, specimen.

2. **Answer choice (b) is the correct answer.** A soluble problem is one that can be solved, or is solvable.

3. **Answer choice (b) is the correct answer.** Impending doom means approaching, or imminent, doom.

4. **Answer choice (a) is the correct answer.** A spontaneous outing is one that isn't planned, or is improvised.

5. **Answer choice (d) is the correct answer.** An immaculate room is perfectly clean, or spotless.

6. **Answer choice (c) is the correct answer.** An ambiguous answer is one that is unclear, or cryptic.

7. **Answer choice (c) is the correct answer.** A cheery disposition means a cheery attitude, or temperament.

8. **Answer choice (b) is the correct answer.** An arduous task is a strenuous, or difficult, task.

9. **Answer choice (d) is the correct answer.** To refute an argument means to go against it, or discredit it.

10. **Answer choice (c) is the correct answer.** To divulge information means to reveal, or disclose, information.

11. **Answer choice (d) is the correct answer.** An introspective child is a child who thinks about things, or is reflective.

12. **Answer choice (a) is the correct answer.** A secluded cabin is a cabin that is by itself, or isolated.

13. **Answer choice (c) is the correct answer.** A brittle cookie is a cookie that can easily fall apart, or a crumbling cookie.

14. **Answer choice (a) is the correct answer.** To reprimand a child means to lecture, criticize, or scold a child.

15. **Answer choice (b) is the correct answer.** A recessive gene is the non-dominant, or masked, gene.

16. **Answer choice (a) is the correct answer.** A holistic view is all-encompassing, or comprehensive.

17. **Answer choice (d) is the correct answer.** To appraise a house means to give the value of a house, or to evaluate it.

18. **Answer choice (c) is the correct answer.** A fictional character is made up, or fabricated.

19. **Answer choice (a) is the correct answer.** A lucid explanation is one that makes sense, or is clear.

20. **Answer choice (b) is the correct answer.** An opportune moment is a fortunate, or advantageous, moment.

Vocabulary Set 3

1. **Answer choice (a) is the correct answer.** An inflammable object is one that can easily be set on fire, or one that is flammable.

2. **Answer choice (c) is the correct answer.** Something said with conviction is something said with assurance, or confidence.

3. **Answer choice (d) is the correct answer.** A meandering road is a twisting, turning, or winding road.

4. **Answer choice (c) is the correct answer.** To quench your thirst means to get rid of, or satisfy, your thirst.

5. **Answer choice (b) is the correct answer.** An apprehensive look is an anxious, worried, or uneasy look.

6. **Answer choice (a) is the correct answer.** To resolve a conflict means to solve, or settle, a conflict.

7. **Answer choice (c) is the correct answer.** An intricate design is complex, or elaborate.

8. **Answer choice (d) is the correct answer.** A sophisticated palate means you have sophisticated taste.

9. **Answer choice (a) is the correct answer.** An irrelevant detail is unnecessary, or extraneous.

10. **Answer choice (b) is the correct answer.** To concoct a plan is to devise, create, or formulate a plan.

11. **Answer choice (d) is the correct answer.** A sympathetic glance is a supportive, or thoughtful, glance.

12. **Answer choice (b) is the correct answer.** An underwhelming performance does not live up to your expectations and is disappointing.

13. **Answer choice (d) is the correct answer.** An impromptu party is not planned and is spontaneous, or impulsive.

14. **Answer choice (a) is the correct answer.** A destitute child is a very poor, or impoverished, child.

15. **Answer choice (c) is the correct answer.** Erratic behavior is all over the place, or unpredictable.

16. **Answer choice (a) is the correct answer.** An inconsequential error is an error that is insignificant, or negligible.

17. **Answer choice (b) is the correct answer.** A sheepish grin is a timid, or shy, grin.

18. **Answer choice (b) is the correct answer.** A predictable outcome is one that you would expect to happen, or one that is anticipated.

19. **Answer choice (c) is the correct answer.** An impermeable membrane is one that does not allow liquid to pass through, or is impervious.

20. **Answer choice (b) is the correct answer.** An optimistic outlook is a hopeful, or positive, outlook.

Vocabulary Set 4

1. **Answer choice (d) is the correct answer.** An inquisitive student is a student who asks questions, or is curious.

2. **Answer choice (b) is the correct answer.** A severe ailment is a serious illness or disease.

3. **Answer choice (c) is the correct answer.** An assured response is a confident response.

4. **Answer choice (a) is the correct answer.** An extraneous solution is a solution that does not matter, or is inessential.

5. **Answer choice (d) is the correct answer.** A cordial interaction is a pleasant, friendly, or polite interaction.

6. **Answer choice (a) is the correct answer.** A revered author is an author that is loved or admired.

7. **Answer choice (d) is the correct answer.** To abide by the rules means to follow, or adhere, to the rules.

8. **Answer choice (c) is the correct answer.** A universal belief is a belief that is held by a lot of people, or a common belief..

9. **Answer choice (c) is the correct answer.** To embellish a story means to add details to or exaggerate a story.

10. **Answer choice (a) is the correct answer.** A detailed agenda is a detailed plan or schedule.

11. **Answer choice (d) is the correct answer.** Causing controversy means to cause debate or disagreement.

12. **Answer choice (b) is the correct answer.** A puzzle expression is a confused, or bewildered, expression.

13. **Answer choice (a) is the correct answer.** To scrutinize text means to examine, or analyze, the text.

14. **Answer choice (a) is the correct answer.** To dilute a mixture usually means to put water into it to weaken it.

15. **Answer choice (c) is the correct answer.** To eradicate a disease means to completely get rid of, or expunge, it.

16. **Answer choice (c) is the correct answer.** An inconclusive test is a test that does not lead to a firm conclusion, or a test that is indeterminate.

17. **Answer choice (b) is the correct answer.** A preliminary discovery is a discovery made in the beginning, or an initial discovery.

18. **Answer choice (a) is the correct answer.** An irrefutable claim is one that can't be refuted or disproved, so it is a claim that is undeniable.

19. **Answer choice (d) is the correct answer.** A smug look is an arrogant, or egotistical, look.

20. **Answer choice (b) is the correct answer.** To prune bushes means to cut, or trim, them.

Language

Language Chapter

Commas Practice Set 1

1. **Answer choice (b) is the correct answer.** A comma is needed after "water" because the phrase "wouldn't you" is a tag question.

2. **Answer choice (a) is the correct answer.** A comma is needed after "strawberries" because commas go in between items in a list.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (b) is the correct answer.** A comma is needed after "in addition" because it's an introductory or transition phrase.

5. **Answer choice (c) is the correct answer.** A comma is needed after "Thursday" because when writing dates, a comma separates the day and month.

6. **Answer choice (c) is the correct answer.** A comma is needed after "dishes" because the phrase "If you don't wash the dishes" is a dependent clause.

7. **Answer choice (a) is the correct answer.** A comma is needed after "yesterday" because the first part of the sentence, "She claimed she cleaned her room yesterday," and the second part of the sentence, "her room was still messy" are both independent clauses.

8. **Answer choice (c) is the correct answer.** A comma is needed before John because it is a parenthetical word.

9. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

10. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

Commas Practice Set 2

1. **Answer choice (a) is the correct answer.** A comma is needed after "Irvine" because when writing addresses, a comma separates the city and state.

2. **Answer choice (b) is the correct answer.** A comma is needed after "halls" because commas go in between items in a list.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (b) is the correct answer.** A comma is needed after "The Smith family" because the phrase "not the Brown family" is a contrasting phrase.

5. **Answer choice (c) is the correct answer.** A comma is needed after "muddy" because the adjectives "muddy" and "dirty" both describe the same noun: the shirt.

6. **Answer choice (a) is the correct answer.** A comma is needed after "sweatshirt" because the first part of the sentence, "Candice lost her favorite sweatshirt," and the second part of the sentence, "her dad bought her a new one," are both independent clauses.

7. **Answer choice (c) is the correct answer.** There should not be a comma after "summer" because the second part of the sentence, "swam with dolphins" is not an independent clause.

8. **Answer choice (b) is the correct answer.** A comma is needed after "summer vacation" because it is a dependent clause.

9. **Answer choice (c) is the correct answer.** A comma is needed after "mystery novels" because the first part of the sentence, "I don't like reading mystery novels," and the second part of the sentence, "do I like reading romance novels" are both independent clauses.

10. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

Sentence Structure Practice Set 1

1. **Answer choice (a) is the correct answer.** The phrase is a fragment sentence because it is missing a subject and a main verb.

2. **Answer choice (c) is the correct answer.** "He didn't want to mow the lawn" and "he was too tired" are both independent clauses, so this sentence is a run on.

3. **Answer choice (b) is the correct answer.** The verbs in the sentence should be in the same form. The sentence should say, "Teresa likes to dance, run, and sing." It could also say, "Teresa likes dancing, running, and singing."

4. **Answer choice (a) is the correct answer.** "I've never seen so many butterflies" and "They are so pretty" are both independent clauses, so this sentence is a run on.

5. **Answer choice (a) is the correct answer.** The phrase is a dependent clause, so it is a fragment.

6. **Answer choice (b) is the correct answer.** The phrase is a fragment because it is missing a subject.

7. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

8. **Answer choice (a) is the correct answer.** The phrase is a fragment because it is missing a subject.

9. **Answer choice (c) is the correct answer.** The verbs in the sentence should be in the same form. The sentence should say, "He was hoping to meet new people, learn something new, and make money."

10. **Answer choice (a) is the correct answer.** The phrase is a dependent clause, so it is a fragment.

Sentence Structure Practice Set 2

1. **Answer choice (c) is the correct answer.** The verbs in the sentence should be in the same form. The sentence should say, "He likes reading books and learning new things." It could also say, "He likes to read books and learn new things."

2. **Answer choice (a) is the correct answer.** "I really enjoy going on hikes" and "the scenery is beautiful" are both independent clauses, so this sentence is a run on.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (b) is the correct answer.** The phrase is a fragment because it is missing a main verb. Verbs ending in *-ing* are not main verbs.

5. **Answer choice (a) is the correct answer.** The phrase is a fragment because it is missing a subject.

6. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

7. **Answer choice (c) is the correct answer.** The verbs in the sentence should be in the same form. The sentence should say, "She always talks to people and listens to their problems." It could also say, "She is always talking to people and listening to their problems."

8. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

9. **Answer choice (b) is the correct answer.** The phrase is a fragment because it is missing a subject.

10. **Answer choice (b) is the correct answer.** "Pam didn't understand the question" and "she was confused" are both independent clauses, so this sentence is a run on.

Quotation Marks Practice Set 1

1. **Answer choice (b) is the correct answer.** There needs to be a quotation mark at the end of the sentence.

2. **Answer choice (a) is the correct answer.** Quotation marks need to be around "gigantic" because it is being used as a word.

3. **Answer choice (c) is the correct answer.** The question mark should be placed inside of the quotation marks because the quote itself is a question.

4. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

5. **Answer choice (a) is the correct answer.** Quotation marks need to be around "Stop" because it was yelled.

6. **Answer choice (c) is the correct answer.** A comma needs to be placed after "Opera."

7. **Answer choice (c) is the correct answer.** A comma needs to be placed after "tomorrow."

8. **Answer choice (a) is the correct answer.** Quotation marks need to be around "moist" because it is being used as a word.

9. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

10. **Answer choice (b) is the correct answer.** There should not be quotation marks around the phrase, "it's better to be safe than sorry," because it comes after the word "that."

Quotation Marks Practice Set 2

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (c) is the correct answer.** There should be quotation marks at the end of the sentence after "broccoli!" because it is the end of a quote.

3. **Answer choice (b) is the correct answer.** The question mark should not be inside of the quotation marks because the quote itself isn't a question: the question is the phrase "why did you say…?"

4. **Answer choice (b) is the correct answer.** The comma after "pardon me" should be inside of the quotation marks.

5. **Answer choice (c) is the correct answer.** There should not be quotation marks around the phrase, "we should start our homework early," because it comes after the word "that."

6. **Answer choice (a) is the correct answer.** The period at the end of the sentence should go inside of the quotation marks because periods always go inside quotation marks.

7. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

8. **Answer choice (a) is the correct answer.** Quotation marks need to be around "indifferent" because it is being used as a word.

9. **Answer choice (c) is the correct answer.** The question mark should not be inside of the quotation marks because the quote itself isn't a question: the question is the phrase "Did the teacher really just say…?"

10. **Answer choice (a) is the correct answer.** A comma needs to be after "me" because a comma always comes before the first set of quotation marks.

Other Punctuation Practice Set 1

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (a) is the correct answer.** We cannot put a colon in the middle of the sentence because the phrase before the colon, "Our parents always told us to," is not a complete sentence.

3. **Answer choice (c) is the correct answer.** There needs to be an apostrophe in the word "you'll" because it's a contraction meaning "you will."

4. **Answer choice (c) is the correct answer.** The semicolon should be a comma because the phrase after the semicolon is not a complete sentence.

5. **Answer choice (b) is the correct answer.** The comma should be a dash or the dash should be a comma because you can either use two commas around parenthetical phrases or two dashes: you cannot use a comma and a dash.

6. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

7. **Answer choice (a) is the correct answer.** There should be an apostrophe in the word "won't" because it's a contraction meaning "will not."

8. **Answer choice (b) is the correct answer.** The semicolon should be a comma because the phrase before the semicolon is not a complete sentence.

9. **Answer choice (b) is the correct answer.** Never use a colon with the phrase "for example."

10. **Answer choice (c) is the correct answer.** There should not be a colon because the phrase before the colon is not a complete sentence.

Other Punctuation Practice Set 2

1. **Answer choice (b) is the correct answer.** An apostrophe is needed in "Andy's" because Andy and Angela own separate cars.

2. **Answer choice (a) is the correct answer.** The comma should be a dash or the dash should be a comma because you can either use two commas around parenthetical phrases or two dashes: you cannot use a comma and a dash.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (a) is the correct answer.** The semicolon should be a comma because the phrase before the semicolon is not a complete sentence.

5. **Answer choice (c) is the correct answer.** Never use a colon with the phrase "for instance."

6. **Answer choice (c) is the correct answer.** An apostrophe is needed in "Ariel's" because the sentence is referring to her (Ariel's) daughter which shows possession.

7. **Answer choice (a) is the correct answer.** An apostrophe is needed in "we've" because it is a contraction meaning "we have."

8. **Answer choice (b) is the correct answer.** There should not be a colon because the phrase before the colon is not a complete sentence.

9. **Answer choice (c) is the correct answer.** The semicolon should be a comma because the phrase after the semicolon is not a complete sentence.

10. **Answer choice (b) is the correct answer.** The semicolon should be a comma because the phrase after the semicolon is not a complete sentence.

Capitalization Practice Set 1

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (b) is the correct answer.** "Labor Day" should be capitalized because it is a holiday.

3. **Answer choice (c) is the correct answer.** "Professor" should not be capitalized because it is not used with a name.

4. **Answer choice (c) is the correct answer.** The word "and" at the beginning of the second part of the quote should not be capitalized because the first word of a partial quote is not capitalized.

5. **Answer choice (a) is the correct answer.** The word "south" should not be capitalized because it is referring to a direction, not a region.

6. **Answer choice (a) is the correct answer.** "Jefferson Avenue" should be capitalized because streets are proper nouns.

7. **Answer choice (b) is the correct answer.** "November" should be capitalized because it is a month.

8. **Answer choice (b) is the correct answer.** "Winter" should not be capitalized because seasons are only capitalized when they are part of a proper noun.

9. **Answer choice (c) is the correct answer.** "Science" should not be capitalized because general subjects are not capitalized unless they are languages.

10. **Answer choice (a) is the correct answer.** "Aunt" should be capitalized because it is in front of a name.

Capitalization Practice Set 2

1. **Answer choice (c) is the correct answer.** "Ocean" should be capitalized after "Atlantic" and "Pacific" because oceans are proper nouns.

2. **Answer choice (b) is the correct answer.** "Northeast" should be capitalized because it refers to a region, not a direction.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

5. **Answer choice (a) is the correct answer.** “Would” should be capitalized because it is the beginning of a quote.

6. **Answer choice (c) is the correct answer.** “Spanish” needs to be capitalized because languages are always capitalized.

7. **Answer choice (b) is the correct answer.** “Northeast” should not be capitalized because it is referring to a direction, not a region.

8. **Answer choice (a) is the correct answer.** “Spring” should not be capitalized because seasons are only capitalized when they are part of a proper noun.

9. **Answer choice (a) is the correct answer.** “Monday” needs to be capitalized because it is a day of the week.

10. **Answer choice (b) is the correct answer.** “Senator” needs to be capitalized because it is in front of a name.

Homophones Practice Set 1

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (a) is the correct answer.** “Were” should be replaced with “we’re” which is a contraction meaning “we are.” “Were” is the past tense of “are.”

3. **Answer choice (b) is the correct answer.** “Then” should be replaced with “than” which is used with comparisons. “Then” is used to indicate time.

4. **Answer choice (a) is the correct answer.** “Whose” should be replaced with “who’s” meaning “who is”. “Whose” is used for possession.

5. **Answer choice (c) is the correct answer.** The first “to” should be replaced with “too” which means “an excessive amount.” “To” is a preposition used before a noun or an infinitive used before a verb.

6. **Answer choice (b) is the correct answer.** “Whom” should be replaced with “who” because it is referring to the subject of the sentence (Iliana). “Whom” refers to the object of a sentence or clause.

7. **Answer choice (c) is the correct answer.** “You’re” should be replaced with “your” which is used to show possession. “You’re” is a contraction meaning “you are.”

8. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

9. **Answer choice (b) is the correct answer.** “There” should be replaced with “they’re” which is a contraction meaning “they are.” “There” shows location.

10. **Answer choice (a) is the correct answer.** “Effect” should be replaced with “affect” which is used as a verb. “Effect” is used as a noun.

Homophones Practice Set 2

1. **Answer choice (a) is the correct answer.** “Its” should be replaced with “it’s” which is a contraction meaning “it is.” “Its” is used to show possession.

2. **Answer choice (c) is the correct answer.** “Than” should be replaced with “then” which is used to indicate time. “Than” is used for comparisons.

3. **Answer choice (b) is the correct answer.** “It’s” should be replaced with “its” which is used for possession. “It’s” is a contraction meaning “it is.”

4. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

5. **Answer choice (a) is the correct answer.** “Wear” should be replaced with “where” which is used with location. “Wear” is used when talking about clothing or accessories.

6. **Answer choice (c) is the correct answer.** “Who’s” should be replaced with “whose” which is used to show possession. “Who’s” is a contraction meaning “who is.”

7. **Answer choice (a) is the correct answer.** “They’re” should be replaced with “their” which is used to show possession. “They’re” is a contraction meaning “they are.”

8. **Answer choice (b) is the correct answer.** “Your” should be replaced with “you’re” which is a contraction meaning “you are.” “Your” is used to show possession.

9. **Answer choice (c) is the correct answer.** “Who” should be replaced with “whom” because it is referring to the object of the sentence (sister). “Who” refers to the subject of a sentence or phrase.

10. **Answer choice (a) is the correct answer.** “To” should be replaced with “two” which is a number.

Similar Words Practice Set 1

1. **Answer choice (c) is the correct answer.** “Lie” should be replaced with “lay” which is used with an object. “Lie” is not used with an object.

2. **Answer choice (a) is the correct answer.** “Good” should be replaced with “well” which is used to describe feelings.

3. **Answer choice (c) is the correct answer.** “Went” should be replaced with “gone” which comes after auxiliary verbs such as “has”, “have”, or “had.” “Went” does not come after auxiliary verbs.

4. **Answer choice (b) is the correct answer.** “Further” should be replaced with “farther” which refers to physical distance. “Further” refers to abstract concepts.

5. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

6. **Answer choice (a) is the correct answer.** “Less” should be replaced with “fewer” because it modifies the plural noun “shoes.” “Less” is used to modify singular nouns.

7. **Answer choice (c) is the correct answer.** “Or” should be replaced with “nor” which always goes with “neither.” “Or” goes with “either.”

8. **Answer choice (b) is the correct answer.** “Should of” is not a grammatically correct phrase and should be replaced with “should have.”

9. **Answer choice (c) is the correct answer.** “Among” should be replaced with ‘between” because there are only two items: brother and sister. “Among” is used for more than two items.

10. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

Similar Words Practice Set 2

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (b) is the correct answer.** "Farther" should be replaced with "further" which refers to abstract concepts. "Farther" refers to physical distance.

3. **Answer choice (c) is the correct answer.** "Fewer" should be replaced with "less" because it modifies a singular noun "patience." "Fewer" is used to modify plural nouns.

4. **Answer choice (c) is the correct answer.** "Nor" should be replaced with "or" which always goes with "either." "Nor" goes with "neither."

5. **Answer choice (c) is the correct answer.** "Well" should be replaced with "good" which modifies nouns (in this case it modifies "performance").

6. **Answer choice (b) is the correct answer.** "Shouldn't of" is not a grammatically correct phrase and should be replaced with "shouldn't have."

7. **Answer choice (a) is the correct answer.** "Between" should be replaced with "among" which is used when items are split among a group of people or things. "Between" is used with two people or items.

8. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

9. **Answer choice (a) is the correct answer.** "Lay" should be replaced with "lie" which is not used with an object. "Lay" is used with an object.

10. **Answer choice (a) is the correct answer.** "Went" should be replaced with "gone" which comes after auxiliary verbs such as "has", "have", or "had." "Went" does not come after auxiliary verbs.

Comparisons Practice Set 1

1. **Answer choice (a) is the correct answer.** It incorrectly compares Mrs. Bonnet's pecan pie to Mrs. Mulligan. It should compare Mrs. Bonnet's pecan pie to Mrs. Mulligan's pie.

2. **Answer choice (b) is the correct answer.** It incorrectly compares the weather in Connecticut to North Carolina. It should compare the weather in Connecticut to the weather in North Carolina.

3. **Answer choice (c) is the correct answer.** "Smartest" should be replaced with "smarter" which is used when comparing two things. "Smartest" is used to compare three or more things.

4. **Answer choice (b) is the correct answer.** It incorrectly compares the opinions of adults to children. It should compare the opinions of adults to the opinions of children.

5. **Answer choice (a) is the correct answer.** "Worst" should be replaced with "worse" which is used to compare two things. "Worst" is used to compare three or more things.

6. **Answer choice (b) is the correct answer.** "More" should be replaced with "most" which is used to compare a group of three or more things. "More" is used to compare two things.

7. **Answer choice (b) is the correct answer.** "Heavier" should be replaced with "heaviest" which is used to compare three or more things. "Heavier" is used to compare two things.

8. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

9. **Answer choice (c) is the correct answer.** "Friendliest" should be replaced with "friendlier" which is used to compare two things. "Friendliest" is used to compare three or more things.

10. **Answer choice (a) is the correct answer.** It incorrectly compares the burgers at Vinny's Diner to Billy's Diner. It should compare the burgers at Vinny's Diner to the burgers at Billy's Diner.

Comparisons Practice Set 2

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (c) is the correct answer.** “Most” should be replaced with “more” which is used to compare two things. “Most” is used to compare three or more things.

3. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

4. **Answer choice (c) is the correct answer.** It incorrectly compares Anthony’s test score to Owen. It should compare Anthony’s test score to Owen’s test score.

5. **Answer choice (c) is the correct answer.** “Softest” should be replaced with “softer” which is used to compare two things. “Softest” is used to compare three or more things.

6. **Answer choice (a) is the correct answer.** It incorrectly compares the line at this grocery store to the grocery store near my house. It should compare the line at this grocery store to the line at the grocery store near my house.

7. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

8. **Answer choice (b) is the correct answer.** “Faster” should be replaced with “fastest” which is used to compare three or more things. “Faster” is used to compare two things.

9. **Answer choice (b) is the correct answer.** “Smallest” should be replaced with “smaller” which is used to compare two things. “Smallest” is used to compare three or more things.

10. **Answer choice (a) is the correct answer.** “Taller” should be replaced with “tallest” which is used to compare three or more things. “Taller” is used to compare two things.

Pronouns, Adjectives, and Adverbs Practice Set 1

1. **Answer choice (b) is the correct answer.** “I” should be replaced with “me” which is used as the object of a sentence. “I” is used as the subject of a sentence.

2. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

3. **Answer choice (c) is the correct answer.** “Quick” should be replaced with “quickly” because it modifies the verb “walk.” Adverbs, like “quickly”, modify verbs, adjectives, or other adverbs. Adjectives, like “quick”, modify nouns or pronouns.

4. **Answer choice (a) is the correct answer.** “Beautifully” should be replaced with “beautiful” because it modifies the noun “drawings.” Adjectives, like “beautiful”, modify nouns or pronouns. Adverbs, like “beautifully”, modify verbs, adjectives, or other adverbs.

5. **Answer choice (b) is the correct answer.** “He” should be replaced with “him” which is used as the object of a sentence. “He” is used as the subject of a sentence or phrase.

6. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

7. **Answer choice (a) is the correct answer.** “Amazing” should be replaced with “amazingly” because it modifies the verb “performed.” Adverbs, like “amazingly”, modify verbs, adjectives, or other adverbs. Adjectives, like “amazing”, modify nouns or pronouns.

8. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

9. **Answer choice (c) is the correct answer.** “Her” should be replaced with “she” which is used as the subject of the sentence. “Her” is used as the object of a sentence.

10. **Answer choice (b) is the correct answer.** “Me” should be replaced with “I” which is used as the subject of a sentence. “Me” is used as the object of a sentence.

Pronouns, Adjectives, and Adverbs Practice Set 2

1. **Answer choice (b) is the correct answer.** “I” should be replaced with “me” which is used as the object of a sentence. “I” is used as the subject of a sentence.

2. **Answer choice (a) is the correct answer.** “Patient” should be replaced with “patiently” because it modifies the verb “wait.” Adverbs, like “patiently”, modify verbs, adjectives, or other adverbs. Adjectives, like “patient”, modify nouns or pronouns.

3. **Answer choice (a) is the correct answer.** “I” should be replaced with “me” which is used as the object of a sentence. “I” is used as the subject of a sentence.

4. **Answer choice (c) is the correct answer.** “Comfortable” should be replaced with “comfortably” because it modifies the verb “fit.” Adverbs, like “comfortably”, modify verbs, adjectives, or other adverbs. Adjectives, like “comfortable”, modify nouns or pronouns.

5. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

6. **Answer choice (c) is the correct answer.** "Careful" should be replaced with "carefully" because it modifies the verb "drove." Adverbs, like "carefully", modify verbs, adjectives, or other adverbs. Adjectives, like "careful", modify nouns or pronouns.

7. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

8. **Answer choice (c) is the correct answer.** "Terrible" should be replaced with "terribly" because it modifies the verb "played." Adverbs, like "terribly", modify verbs, adjectives, or other adverbs. Adjectives, like "terrible", modify nouns or pronouns.

9. **Answer choice (a) is the correct answer.** "Us" should be replaced with "we" which is used as the subject of a sentence. "Us" is used as the object of a sentence.

10. **Answer choice (b) is the correct answer.** "Me" should be replaced with "I" which is used as the subject of a sentence. "Me" is used as the object of a sentence.

Subject Verb Agreement and Past Participle Practice Set 1

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (c) is the correct answer.** "Are" should be replaced with "is" because it refers to "anyone" which is a singular noun.

3. **Answer choice (a) is the correct answer.** "Were" should be replaced with "was" because it refers to "one of her shoes" which is a singular noun.

4. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

5. **Answer choice (a) is the correct answer.** "Saw" should be "seen" which is the past participle of "see", and past participles follow auxiliary verbs such as "had."

6. **Answer choice (b) is the correct answer.** "Are" should be replaced with "is" because it refers to "everyone" which is a singular noun.

7. **Answer choice (a) is the correct answer.** "Ran" should be "run" which is the past participle of "run", and past participles follow auxiliary verbs such as "had."

8. **Answer choice (c) is the correct answer.** "Bit" should be "bitten" which is the past participle of "bite", and past participles follow auxiliary verbs such as "had."

9. **Answer choice (b) is the correct answer.** "Were" should be replaced with "was" because it refers to "neither" which is singular.

10. **Answer choice (a) is the correct answer.** "Fell" should be replaced with "fallen" which is the past participle of "fall", and past participles follow auxiliary verbs such as "had."

Subject Verb Agreement and Past Participle Practice Set 2

1. **Answer choice (c) is the correct answer.** "Are" should be replaced with "is" because it is referring to Janet, not her friends, and Janet is a singular noun.

2. **Answer choice (b) is the correct answer.** "Eaten" should be "ate" which is the past tense of "eat." "Eaten" is the past participle of "eat" and is used after auxiliary verbs such as "has", "had", and "have."

3. **Answer choice (c) is the correct answer.** "Rode" should be replaced with "ridden" which is the past participle of "ride", and past participles follow auxiliary verbs such as "have."

4. **Answer choice (a) is the correct answer.** "Were" should be replaced with "was" because it refers to "one" which is a singular noun.

5. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

6. **Answer choice (c) is the correct answer.** "Forgot" should be replaced with "forgotten" which is the past participle of "forgot", and past participles follow auxiliary verbs such as "had."

7. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

8. **Answer choice (b) is the correct answer.** "Were" should be replaced with "was" because it refers to "pack", not lions, which is a singular noun.

9. **Answer choice (a) is the correct answer.** "Don't" should be replaced with "doesn't" because it refers to "one" which is a singular noun.

10. **Answer choice (c) is the correct answer.** "Are" should be replaced with "is" because it refers to "either" which is singular.

Extra Grammar Rules Practice Set 1

1. **Answer choice (a) is the correct answer.** "Their" should be replaced with "his or her" because if refers to "everyone" which is singular.

2. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

3. **Answer choice (c) is the correct answer.** "Their" should be replaced with "his or her" because if refers to "no one" which is singular.

4. **Answer choice (b) is the correct answer.** "Not nobody" is a double negative, so it should be replaced with "nobody."

5. **Answer choice (c) is the correct answer.** "Couldn't hardly" is a double negative, so it should be replaced with "could hardly."

6. **Answer choice (b) is the correct answer.** "Don't" and "no more" create a double negative, so "no more" should be replaced with "anymore."

7. **Answer choice (a) is the correct answer.** There should be a period at the end of the sentence.

8. **Answer choice (c) is the correct answer.** The period at the end of the sentence should be replaced with a question mark.

9. **Answer choice (b) is the correct answer.** The period at the end of the sentence should be replaced with a question mark.

10. **Answer choice (a) is the correct answer.** "Can't" and "nowhere" create a double negative, so "nowhere" should be replaced with "anywhere."

Extra Grammar Rules Practice Set 2

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (b) is the correct answer.** "Their" should be replaced with "his or her" because it refers to "someone" which is singular.

3. **Answer choice (c) is the correct answer.** The period at the end of the sentence should be replaced with a question mark.

4. **Answer choice (b) is the correct answer.** "Couldn't barely" is a double negative, so it should be replaced with "could barely."

5. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

6. **Answer choice (a) is the correct answer.** "Greatest" already means the "most great", so "most greatest" is redundant and grammatically incorrect.

7. **Answer choice (b) is the correct answer.** "Can't never" is a double negative and should be replaced with "can never" or "can't ever."

8. **Answer choice (c) is the correct answer.** "Their" should be replaced with "his or her" because if refers to "nobody" which is singular.

9. **Answer choice (a) is the correct answer.** The sentence is not a question, so the question mark at the end of the sentence should be a period.

10. **Answer choice (c) is the correct answer.** There should be a period at the end of the sentence.

Spelling Practice Set 1

1. **Answer choice (a) is the correct answer.** "Reccommend" is spelled incorrectly and should be spelled "recommend."

2. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

3. **Answer choice (b) is the correct answer.** "Argueing" is spelled incorrectly and should be spelled "arguing."

4. **Answer choice (c) is the correct answer.** "Excercise" is spelled incorrectly and should be spelled "exercise."

5. **Answer choice (c) is the correct answer.** "Tomatos" is spelled incorrectly and should be spelled "tomatoes."

6. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

7. **Answer choice (b) is the correct answer.** "Calender" is spelled incorrectly and should be spelled "calendar."

8. **Answer choice (a) is the correct answer.** "Neccessary" is spelled incorrectly and should be spelled "necessary."

9. **Answer choice (a) is the correct answer.** "Aquaintance" is spelled incorrectly and should be spelled "acquaintance."

10. **Answer choice (c) is the correct answer.** "Occassion" is spelled incorrectly and should be spelled "occasion."

Spelling Practice Set 2

1. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

2. **Answer choice (c) is the correct answer.** "Dissappointed" is spelled incorrectly and should be spelled "disappointed."

3. **Answer choice (a) is the correct answer.** "Gaurantee" is spelled incorrectly and should be spelled "guarantee."

4. **Answer choice (c) is the correct answer.** "Refferred" is spelled incorrectly and should be spelled "referred."

5. **Answer choice (a) is the correct answer.** "Seperated" is spelled incorrectly and should be spelled "separated"

6. **Answer choice (b) is the correct answer.** "Percieved" is spelled incorrectly and should be spelled "perceived."

7. **Answer choice (b) is the correct answer.** "Apropriate" is spelled incorrectly and should be spelled "appropriate."

8. **Answer choice (a) is the correct answer.** "Dissappeared" is spelled incorrectly and should be spelled "disappeared."

9. **Answer choice (b) is the correct answer.** "Acusatory" is spelled incorrectly and should be spelled "accusatory."

10. **Answer choice (c) is the correct answer.** "Inncorrectly" is spelled incorrectly and should be spelled "incorrectly."

Spelling Practice Set 3

1. **Answer choice (c) is the correct answer.** "Reciept" is spelled incorrectly and should be spelled "receipt."

2. **Answer choice (b) is the correct answer.** "Begining" is spelled incorrectly and should be spelled "beginning."

3. **Answer choice (a) is the correct answer.** "Judgemental" is spelled incorrectly and should be spelled "judgmental."

4. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

5. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

6. **Answer choice (a) is the correct answer.** "Relevent" is spelled incorrectly and should be spelled "relevant."

7. **Answer choice (b) is the correct answer.** "Succesful" is spelled incorrectly and should be spelled "successful."

8. **Answer choice (b) is the correct answer.** "Reccess" is spelled incorrectly and should be spelled "recess."

9. **Answer choice (a) is the correct answer.** "Humerous" is spelled incorrectly and should be spelled "humorous."

10. **Answer choice (c) is the correct answer.** "Exciteing" is spelled incorrectly and should be spelled "exciting."

Spelling Practice Set 4

1. **Answer choice (b) is the correct answer.** "Camoflauge" is spelled incorrectly and should be spelled "camouflage."

2. **Answer choice (c) is the correct answer.** "Miniture" is spelled incorrectly and should be spelled "miniature."

3. **Answer choice (a) is the correct answer.** "Knowlegeable" is spelled incorrectly and should be spelled "knowledgeable."

4. **Answer choice (b) is the correct answer.** "Concieve" is spelled incorrectly and should be spelled "conceive."

5. **Answer choice (a) is the correct answer.** "Apparant" is spelled incorrectly and should be spelled "apparent."

6. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

7. **Answer choice (c) is the correct answer.** "Rythm" is spelled incorrectly and should be spelled "rhythm."

8. **Answer choice (a) is the correct answer.** "Deccelerate" is spelled incorrectly and should be spelled "decelerate."

9. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

10. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

Sentence Completion, Deletion, and Placement Practice Set 1

1. **Answer choice (b) is the correct answer.** The fact that the toilet is leaking is an example of a repair needed in the house, so "for example" is the best choice.

2. **Answer choice (a) is the correct answer.** The main point of the paragraph is to discuss the common cold. Sentence 1 talks about pneumonia and how its symptoms are worse than the common cold. While this sentence mentions the common cold, it is more about pneumonia's symptoms, so it does not belong in the paragraph.

3. **Answer choice (a) is the correct answer.** As a result of Mrs. Halpert having to work the night shift, she will need to find a babysitter to watch her kids. Since the second thought is a result of the first, "consequently" is the best choice.

4. **Answer choice (c) is the correct answer.** The sentence we want to add starts with, "Although the criticism …" which means that it has to come after a sentence that is talking about the criticism at the event. Sentence 1 does not mention criticism, so the new sentence cannot be placed after sentence 1. While sentence 2 mentions criticism, there is no answer choice for putting the new sentence after sentence 2. Sentence 3 mentions criticism, so the new sentence should be placed after sentence 3.

5. **Answer choice (c) is the correct answer.** The main point of the paragraph is to talk about how venomous harvester ants are. Sentence 3 talks about how harvester ants collect seeds which has nothing to do with how venomous they are, so it does not belong in the paragraph.

6. **Answer choice (b) is the correct answer.** The sentence we want to add starts with, "They …" which is referring to Atlantic Salmon, so it has to be placed after sentence 1 or else we won't know who "they" refers to. It introduces the idea that salmon can live in both saltwater and freshwater, so it has to go before sentence 2 which talks about their ability to live in both types of water.

7. **Answer choice (c) is the correct answer.** The two thoughts are saying that when she studied in medical school she also worked at the local diner at the same time. The word that best joins these two thoughts is "meanwhile" which means at the same time.

8. **Answer choice (a) is the correct answer.** The first part of the sentence says Scott was tired. The second part says he continued running, which is not what you would think he would do

since he is tired. This means the word in the blank has to show contrast. "Nevertheless" is the best choice because it means "however."

9. **Answer choice (b) is the correct answer.** The sentence we want to add starts with, "However…" and goes on to say that the narrator has "decided to take a different approach." This sentence has to contrast the sentence that comes before it. Sentence 2 says many students chose a project dealing with our environment, so a contrast would be to take a different approach to the project. The new sentence should be added after sentence 2.

10. **Answer choice (b) is the correct answer.** The main point of the passage is to talk about things in high school that are stressful for students. Sentence 2 talks about things students can look forward to, so this sentence doesn't belong.

Sentence Completion, Deletion, and Placement Practice Set 2

1. **Answer choice (b) is the correct answer.** The second thought is a continuation of the first thought: the first thought talks about texting being dangerous and illegal, and the second thought continues by saying it is illegal in many states. "Moreover" is the best choice because it means "in addition" which is used when the second sentence is a continuation of the first.

2. **Answer choice (c) is the correct answer.** The main point of the paragraph is to talk about the narrator's struggle to choose a career path and why. Sentence 3 focuses on the narrator's school instead of the narrator's struggle.

3. **Answer choice (d) is the correct answer.** The second thought is a continuation of the first thought. The hint is the word "also." None of the answer choices are used with continuation. "For instance" is used when the second thought is an example of the first. "Therefore" means as a result of. "However" means but.

4. **Answer choice (b) is the correct answer.** The added sentence starts with the phrase, "However, there is another item that continues to increase in price…" This tells us that the added sentence has to follow a sentence that talks about an item or items that are continuing to increase in price. Sentence 2 talks about how college, groceries, housing, and gas have increased in price. Sentence 3 goes on to talk about the price of postage, which is also increasing in price. It makes sense that postage is the other "item that continues to increase in price that people often overlook," so it makes sense to place the added sentence in between sentences 2 and 3.

5. **Answer choice (a) is the correct answer.** The paragraph talks about one area of technology, clocks, that have continued to develop. The added sentence is a general statement about technological advancements that introduces this paragraph, so it should go before sentence 1.

6. **Answer choice (b) is the correct answer.** The main point of the paragraph is to talk about students looking forward to the end of the school year. Sentence 2 talks about school continuing through the summer which takes away from the main idea, so sentence 2 does not belong.

7. **Answer choice (c) is the correct answer.** The first sentence talks about the positives of the vacation. The second says that the sister complained. These are contrasting statements, so "despite this" fits best because it means "even though" which is a contrasting statement.

8. **Answer choice (b) is the correct answer.** The two statements are opposites: the first talks about increasing funding and the second talks about reducing funding. "Conversely" means "oppositely," so it fits the best.

9. **Answer choice (c) is the correct answer.** The main point of the paragraph is to talk about scented candles being convenient and pleasant, but potentially dangerous. Sentence 3 talks about people's preferences for scents which doesn't have to do with the potential dangers of candles, so sentence 3 doesn't belong.

10. **Answer choice (a) is the correct answer.** Since the added sentence talks about SUVs using more fuel than smaller vehicles and starts with "unfortunately", the added sentence has to be placed after a sentence that talks about SUVs benefits. Sentence 1 talks about SUVs benefits, so the added sentence should be placed after sentence 1.

Expressing Ideas Clearly Practice Set 1

1. **Answer choice (b) is the correct answer.** The sentences in answer choices (a) and (c) state that the hurricane was riding the bus, so they are incorrect. The sentence in answer choice (d) is missing a subject, so it is incorrect.

2. **Answer choice (d) is the correct answer.** In answer choice (a), "leaving her house at 5:00 a.m. is what she had to do" is clunky and would be better written as "she had to leave her house at 5:00 a.m." For answer choice (b), it is awkward to start a sentence with a preposition ("at") when it isn't used in an introductory phrase. For answer choice (c), it is awkward to start a sentence with the word "being."

3. **Answer choice (b) is the correct answer.** Answer choice (a) sounds awkward because it ends with "is what Jenna did," Answer choice (c) sounds awkward because it doesn't say Jenna washed the dishes and wiped the counters, it just says "she made sure." Answer choice (d) sounds awkward because of the "was first for Jenna" and the use of *-ing* verbs.

4. **Answer choice (a) is the correct answer.** Answer choice (b) is redundant because it mentions "process" twice. Answer choice (c) is clunky and awkward because of the use of *-ing* verbs at the beginning of the sentence. Answer choice (d) is redundant because it says the process is "time consuming" twice.

5. **Answer choice (b) is the correct answer.** The phrase "to take notes" is the only phrase from the answer choices that grammatically makes sense with this sentence.

6. **Answer choice (c) is the correct answer.** The phrase given is a dependent clause, so it needs to be followed by a sentence. Answer choice (a) is not a complete sentence, so it is incorrect. Answer choice (b) is redundant because it says "swimming" twice. Answer choice (d) is awkward because it ends with "is what I saw."

7. **Answer choice (a) is the correct answer.** Answer choice (b) is redundant because it says the rain "wasn't stopping" and "showed no signs of abating" which mean the same thing. Answer choice (c) is clunky because it mentions the rain and then says "as a result of the rain." Answer choice (d) does not mention rain, so the phrase "showing no signs of abating" is referring to "we" which is incorrect.

8. **Answer choice (d) is the correct answer.** Answer choices (a) and (b) say "his dad with the gold band" meaning his dad has a gold band, not the watch. Answer choice (c) is clunky and the phrase "was cherished by him" is awkward.

9. **Answer choice (a) is the correct answer.** Answer choice (b) is awkward because it starts with the preposition "from." Answer choice (c) is awkward because it says "she did" at the end. Answer choice (d) is awkward because it says "from her friend's house to home quickly" instead of "she quickly biked home from her friend's house."

10. **Answer choice (c) is the correct answer.** Answer choice (a) is redundant because it mentioned the photo album twice. Answer choice (b) says she found her children in the basement, not the photo album. Answer choice (d) is awkward because it starts with "the photo album" which is the object, not "she" who is the subject.

Expressing Ideas Clearly Practice Set 2

1. **Answer choice (b) is the correct answer.** Answer choices (a) and (d) sound awkward because of the order of the words. Answer choice (c) is redundant because it mentions the speech twice.

2. **Answer choice (c) is the correct answer.** The verb has to be an *-ing* verb, so answer choice (b) does not work. Answer choice (a) is awkward because it splits up "staring" and "at the ceiling." Answer choice (d) is incorrect because "staring" should be at the beginning of the phrase.

3. **Answer choice (a) is the correct answer.** Answer choices (b) and (c) are incorrect because "eating" should be "he ate" or "he eats." Answer choice (d) is incorrect because "would eat" should not be separated from "a bowl of macaroni and cheese."

4. **Answer choice (b) is the correct answer.** Answer choice (a) says that Kevin's grandmother knitted the sweater with her cat, as in the cat helped her knit the sweater. Answer choice (c) is awkward and clunky because of the phrase "is the one Kevin liked." Answer choice (d) is awkward because "with a cat on it" should be placed after "a sweater." Also, "his grandmother" is an awkward way to start this sentence.

5. **Answer choice (a) is the correct answer.** The phrase that comes after the commas should start with "the woman" because that is who "she" is referring to in the first part of the sentence. Answer choice (d) is awkward because of the word order.

6. **Answer choice (d) is the correct answer.** Answer choice (a) is incorrect because "the book in which Jim wrote" is incorrectly phrased. Answer choice (b) is incorrect because it says the people who read the book had a suspenseful plot. Answer choice (c) is clunky because it mentions "book" three times.

7. **Answer choice (c) is the correct answer.** The phrase that fills in the blank needs to start with a word like "because" or "since." Answer choice (d) starts with "because" but the verb "requiring" is the wrong tense.

8. **Answer choice (a) is the correct answer.** Answer choice (b) is awkward because of the phrase "the removing of the hair." Answer choice (c) is incorrect because it is saying that the water removed the hair from the clogged sink. Answer choice (d) is incorrect because the second part of the sentence should be an independent clause.

9. **Answer choice (d) is the correct answer.** Answer choices (a), (b), and (c) are all incorrect because they each mean that the meal worked all day, but the sentence should say "I worked all day."

10. **Answer choice (d) is the correct answer.** Answer choices (a) and (c) are incorrect because putting the verb at the end of the phrase is awkward. Answer choice (b) is incorrect because the verbs "draw," "paint," and "reading" are not the same forms.

Choosing Topics Practice Set 1

1. **Answer choice (c) is the correct answer.** The main point of the paragraph is to talk about Edison's inventions and how they have had an impact on American society. Answer choice (c) correctly introduces the paragraph by stating that Edison is an impactful inventor.

2. **Answer choice (a) is the correct answer.** The topic "The Evolution of Pop Music" is about how pop music has evolved, or changed, over time. Since Michael Jackson had an influence on pop music, he impacted the evolution of pop music.

3. **Answer choice (c) is the correct answer.** Answer choices (a) and (b) are too broad to be fit into a one-page essay. Answer choice (c) is specific enough to write about in one page.

4. **Answer choice (d) is the correct answer.** The topic "Technological Advancements Simplify Communication" is about technology that makes communication, or talking, easier. Answer choices (a) and (b) mention technology but don't say how it has made communication easier. Answer choice (c) mentions how technology has made shopping easier, but doesn't talk about communication.

5. **Answer choice (a) is the correct answer.** The main point of the paragraph is that since parents have so much to do, cooking for their families is difficult. Answer choice (a) correctly introduces the paragraph because it states that cooking is stressful and daunting.

6. **Answer choice (b) is the correct answer.** The topic "A Lesson in Showing Empathy" is about how to effectively show empathy, which includes listening, putting yourself in other's shoes, and understanding. Answer choice (b) fits under the topic because it gives a specific way to show more empathy: listening.

7. **Answer choice (b) is the correct answer.** Answer choices (a) and (c) are too broad and cover too much information to fit into one paragraph. Answer choice (b) is specific enough, and it only requires a few steps to explain how to wash your face.

8. **Answer choice (c) is the correct answer.** The topic "An Exploration of the Benefits of Video Games" talks about how videogames can be helpful. Answer choice (c) states that

video games can increase reaction times and improve the ability to multitask which are benefits of video games.

9. **Answer choice (d) is the correct answer.** The main point of the paragraph is to talk about how wildfires, while dangerous to humans, are also very dangerous to animals and wildlife. None of the answer choices correctly introduce this main idea. Answer choice (a) is incorrect because the paragraph does not mention California. Answer choice (b) is incorrect because the paragraph does not mention firefighters. Answer choice (c) is incorrect because the passage does not mention any methods for preventing the spread of wildfire.

10. **Answer choice (a) is the correct answer.** Exploring a theme in a book involves a lot of information, so it could fill a five-page essay. Answer choice (b) is too specific and short for a five-page essay. Answer choice (c) says a *brief* summary which means a short summary.

Choosing Topics Practice Set 2

1. **Answer choice (b) is the correct answer.** The topic "Tips for Sticking to an Exercise Routine" talks about strategies on how to commit to exercising. Answer choice (b) provides a strategy on how to reduce the likelihood of quitting your routine which is a helpful tip for staying committed to exercising.

2. **Answer choice (c) is the correct answer.** The main point of the passage is that even though it's scary and uncomfortable, pushing yourself outside of your comfort zone is beneficial. Answer choice (c) correctly introduces this idea.

3. **Answer choice (b) is the correct answer.** The topic "Maintenance for your Automobile" talks about how to keep your automobile maintained and in good condition. Answer choice (b) provides a tip for how to maintain tire wear and tear which helps keep your car in good condition.

4. **Answer choice (b) is the correct answer.** Analyzing the main causes of World War II would require a decent amount of writing, so it would be good for a five page essay. Answer choice (a) has the word "quick" in it, so it wouldn't require five pages. Answer choice (c) is a relatively simple process, so it wouldn't take up five pages.

5. **Answer choice (d) is the correct answer.** Answer choice (a) requires more than one paragraph because running a business is not a simple thing to do and there are many steps. Answer choice (b) requires more than one paragraph because planning a wedding is a long process with a lot of steps. Answer choice (c) is too broad to be put into one paragraph.

6. **Answer choice (b) is the correct answer.** The topic "Eating Habits of Cheetahs" talks about how and what Cheetahs eat. Answer choice (b) provides information about Cheetahs eating habits because it tells us that they don't usually eat things they did not kill themselves.

7. **Answer choice (d) is the correct answer.** The main point of the passage is that teenagers are intentional about what they put on social media, and they post content to impress their peers. None of the answer choices correctly introduce this main idea.

8. **Answer choice (a) is the correct answer.** The topic "How to Bake the Perfect Cake" talks about the steps and tools needed to bake a perfect cake. Answer choice (a) provides a tip about the oven temperature that can help create a perfect cake.

9. **Answer choice (a) is the correct answer.** The main point of the passage is that creating an online course may take a lot of work, but is a great way to make extra income while you sleep. Answer choice (a) correctly introduces this main idea because it says that creating an online course is a good source of passive income, and passive income is income you can make without doing extra work.

10. **Answer choice (a) is the correct answer.** Reorganizing your closet is not a super difficult task, but it has enough steps to take up a one-page article. Answer choices (b) and (c) are too complex to be explained in a one-page article.

Practice Tests

Practice Test 1

Verbal Skills

1. **Answer choice (d) is the correct answer.** Independent means not depending on other people, or doing things on your own, which most nearly means *self-sufficient.*

2. **Answer choice (c) is the correct answer.** Frank is the opposite of dishonest. Chaotic is the opposite of orderly.

3. **Answer choice (c) is the correct answer.** While we know that Gus and Ryan are both taller than Jeremy, we cannot determine the relationship between the heights of Gus and Ryan.

4. **Answer choice (b) is the correct answer.** Uplifting, elevating, and inspiring all mean to increase something or raise something up. Boring means uninteresting, so it does not belong.

5. **Answer choice (c) is the correct answer.** Obvious means very clear or easy to understand, which is the opposite of unclear.

6. **Answer choice (a) is the correct answer.** Expelled means to be banned from somewhere permanently, while suspended means to be banned temporarily. Therefore, expelled is more permanent than suspended. Pardoned means to be completely freed, while probation means to be partially free. Therefore, pardoned is more permanent than probation.

7. **Answer choice (d) is the correct answer.** Neutral means in the middle, or not choosing sides, which most nearly means *impartial*.

8. **Answer choice (a) is the correct answer.** Piranhas, bass, and guppies are all types of fish. Since fish is the general category, it does not belong.

9. **Answer choice (c) is the correct answer.** Canoes, sailboats, and yachts are all types of boats. A bicycle is not a boat, so it does not belong.

10. **Answer choice (b) is the correct answer.** Since all 8th graders are graduating this year, then any student who is in 8th grade must be graduating this year. Therefore, since Eliza is in 8th grade, she is graduating this year.

11. **Answer choice (a) is the correct answer.** Comprehend means to understand or grasp something, which is the opposite of misunderstand.

12. **Answer choice (d) is the correct answer.** A drought happens when there is a lack of water, and starvation happens when there is a lack of food.

13. **Answer choice (c) is the correct answer.** A doctor, lawyer, and accountant are all occupations. A student is not an occupation, so it does not belong.

14. **Answer choice (d) is the correct answer.** Bold means the same thing as audacious, and shy means the same thing as meek.

15. **Answer choice (a) is the correct answer.** We know that the red snake is shorter than the blue snake, and the blue snake is shorter than the black snake. Therefore, if we order the red, blue, and black snakes from shortest to longest we get red, blue, black. Based on the order, the black snake is longer than the red snake.

16. **Answer choice (d) is the correct answer.** Greedy, miserly, and selfish all mean being concerned with yourself more than others (greedy and miserly mean selfish with money). Rich means having a lot of money, so it does not belong.

17. **Answer choice (b) is the correct answer.** Habilitual is used to describe something that you do routinely, constantly, or something that is a habit. This means the same thing as constant.

18. **Answer choice (d) is the correct answer.** Ravenous, starving, and hungry all mean needing food, but thirsty means needing water, so thirsty does not belong.

19. **Answer choice (a) is the correct answer.** Unappreciative, unthankful, and ungrateful all mean not recognizing the value of something or not showing gratitude. Uncompassionate means uncaring, so it does not belong.

20. **Answer choice (d) is the correct answer.** Mosaic, sculpture, and painting are all types of art, but biography is a type of writing, so it does not belong.

21. **Answer choice (b) is the correct answer.** Copious means very abundant or large in quantity, which is the opposite of *scarce*.

22. **Answer choice (d) is the correct answer.** Infer means to come up with a conclusion based on evidence, or to hypothesize, which most nearly means *assume*.

23. **Answer choice (a) is the correct answer.** Since all of the team members went to the tournament, if someone did not go to the tournament, then he/she is not a member of the team. Therefore, Grady is not a member of the team.

24. **Answer choice (b) is the correct answer.** Insecure means to have doubts, and imperfect means to have flaws.

25. **Answer choice (c) is the correct answer.** Respectable, upright, and honest are all positive qualities. Corrupt is a negative quality, so it does not belong.

26. **Answer choice (d) is the correct answer.** Coerce means to pressure someone into doing something, which most nearly means *compel*.

27. **Answer choice (a) is the correct answer.** If you order the towns from least populous to most populous you will have B, A, C, D, E. Therefore, Town E has more people than all of the other towns.

28. **Answer choice (b) is the correct answer.** A baby bear is a cub, and a baby bird is a chick.

29. **Answer choice (d) is the correct answer.** Dormant means asleep, inactive, or inoperative, which is the opposite of *active*.

30. **Answer choice (c) is the correct answer.** Gracious, humane, and courteous are all positive qualities. Impolite is a negative quality, so it does not belong.

31. **Answer choice (d) is the correct answer.** Assured, confident, and certain all mean being sure of yourself or something. Dubious means hesitant, so it does not belong.

32. **Answer choice (a) is the correct answer.** To boast means to talk with excessive pride, which most nearly means *brag*.

33. **Answer choice (b) is the correct answer.** The climate in a desert is arid, and the climate in a rainforest is humid.

34. **Answer choice (b) is the correct answer.** Being contrite means showing remorse or regret, which most nearly means being *apologetic*.

35. **Answer choice (b) is the correct answer.** Detain means to hold someone back or keep someone in custody. This is the opposite of *liberate*.

36. Answer choice (a) is the correct answer. Introverted means withdrawn or getting energy from spending time alone, which most nearly means *reserved*.

37. Answer choice (d) is the correct answer. One type of math is geometry, and one type of tree is elm.

38. Answer choice (c) is the correct answer. While we know that all Roogles are Boogles, we don't know that all Boogles are Roogles. Therefore, just because all Roogles have a certain characteristic (eyes), that doesn't necessarily mean that all Boogles have that characteristic.

39. Answer choice (c) is the correct answer. A watch is a small version of a clock, and a bike is a small version of a motorcycle.

40. Answer choice (d) is the correct answer. Terminate means to end or conclude, which is the opposite of *commence*.

41. Answer choice (a) is the correct answer. To falter means to hesitate, stutter, or stammer, which most nearly means *stumble*.

42. Answer choice (c) is the correct answer. A stove is in a kitchen, and a shower is in a bathroom.

43. Answer choice (b) is the correct answer. We know that if Ben skips soccer practice, he will not play in the game. Therefore, if he played in the game, there is no way that he skipped practice, because if he did he would not have played in the game.

44. Answer choice (c) is the correct answer. A student is taught by a teacher, and an athlete is taught by a coach.

45. Answer choice (a) is the correct answer. Adaptable, malleable, and conformable all mean easy to change or flexible. Intractable means uncontrollable, so it does not belong.

46. Answer choice (c) is the correct answer. While we know that Sheila's dog and Sohpie's dog are both smaller than Lorenzo's dog, we don't know the relationship between Sheila and Sophie's dog.

47. Answer choice (d) is the correct answer. Vital means very important, crucial, or significant, which is the opposite of *insignificant*.

48. **Answer choice (b) is the correct answer.** Paltry, petty, and worthless all mean unimportant. Useful means practical or helpful, so it does not belong.

49. **Answer choice (b) is the correct answer.** The first statement tells us that all scientists wear lab coats, therefore, if someone is a scientist, then he/she wears a lab coat. Since Alex is a scientist, he wears a lab coat.

50. **Answer choice (c) is the correct answer.** Elated means very happy, which is the opposite of *miserable*.

51. **Answer choice (a) is the correct answer.** Not being able to see from your eyes means you're blind. Not being able to speak from your mouth means you're mute.

52. **Answer choice (c) is the correct answer.** Slander means to make false statements about someone in an attempt to damage his/her reputation. This most nearly means *defame*.

53. **Answer choice (b) is the correct answer.** A square, rectangle, and trapezoid all have four sides. A triangle has three sides, so it does not belong.

54. **Answer choice (a) is the correct answer.** Equity means fairness, which is the opposite of *favoritism*.

55. **Answer choice (a) is the correct answer.** If you order the people from least funny to most funny you get Tom, Joe, Kara. Therefore, Kara is funnier than Tom.

56. **Answer choice (b) is the correct answer.** A clock, hourglass, and sundial all measure time. An odometer measures distance traveled by a vehicle, so it does not belong.

57. **Answer choice (d) is the correct answer.** Succinct, which is often used to describe a speech or piece of writing, means short and clearly expressed, which is closest in meaning to *brief*.

58. **Answer choice (c) is the correct answer.** Opaque means not able to be seen through, which is the opposite of *transparent*.

59. **Answer choice (d) is the correct answer.** Dry, humid, and tropical all describe a climate. Since climate is the general category, it does not belong.

60. **Answer choice (a) is the correct answer.** Perpetuate means to maintain or keep going, which is closest in meaning to *continue*.

Quantitative Skills

61. **Answer choice (a) is the correct answer.** The rule for the sequence is *subtract 25*, so the next number is 115 – 25 = 90.

62. **Answer choice (b) is the correct answer.** (A), (B), and (C) all equal 4.

63. **Answer choice (c) is the correct answer.** Set up the equation $70 - x = 40$ and solve for x: $70 - x = 40 \rightarrow -x = -30 \rightarrow x = 30$.

64. **Answer choice (a) is the correct answer.** The rule for the sequence is *multiply by –5*, so the next number is –250(–5) = 1250.

65. **Answer choice (b) is the correct answer.** The rule for the sequence is *add 5*, so the next number is –881 + 5 = –876.

66. **Answer choice (c) is the correct answer.** To square something, multiply it by itself. Therefore, (A) is equal to $(x + y)(x + y)$ which equals (B). Multiply $(x + y)(x + y)$ to get $x^2 + 2xy + y^2$ which is not equal to (C). Therefore, (A) = (B) ≠ (C)

67. **Answer choice (d) is the correct answer.** In a triangle, the sum of any two sides must be greater than the third side. Therefore, A + B > C.

68. **Answer choice (d) is the correct answer.** Set up the equation $8 + x = \frac{5}{6}(9 \cdot 4)$ and solve for x: $8 + x = \frac{5}{6}(9 \cdot 4) \rightarrow 8 + x = \frac{5}{6}(36) \rightarrow 8 + x = 30 \rightarrow x = 22$.

69. **Answer choice (a) is the correct answer.** (A) equals 12 because $\frac{2}{3}$ of 18 $= \frac{2}{3} \cdot 18 = 12$. (B) equals 12 because $\frac{1}{4}$ of 48 $= \frac{1}{4} \cdot 48 = 12$. (C) equals 12 because $\frac{3}{8}$ of 32 $= \frac{3}{8} \cdot 32 = 12$.

70. **Answer choice (c) is the correct answer.** The rule for the sequence is *divide by 6*, so the next number is $2 \div 6 = \frac{1}{3}$

71. **Answer choice (c) is the correct answer.** Simplify each expression using PEMDAS. (A) = $32 \div 4 + 3^2 = 8 + 9 = 17$. (B) = $-3^2 + 4 \times 2 = -9 + 8 = -1$. (C) = $45 \div 5 + 2^3 = 9 + 8 = 17$. Therefore, (A) equals (C) and is greater than (B).

72. **Answer choice (d) is the correct answer.** The rule for the first letter in each term of the sequence is *forward 2 letters*. The rule for the second letter in each term of the sequence is *backwards 1 letter*. Therefore, the next term is IJ because I is two letters after G and J is one letter before K.

73. **Answer choice (b) is the correct answer.** Set up the equation $x \div 3 = \frac{3}{4} \bullet 24$ and solve for x: $x \div 3 = \frac{3}{4} \bullet 24 \rightarrow x \div 3 = 18 \rightarrow x = 54$.

74. **Answer choice (c) is the correct answer.** To find the perimeter of the parallelogram, add up all four side lengths: $4 + 4 + 6 + 6 = 20$ m.

75. **Answer choice (d) is the correct answer.** The pattern is add 20, add 18, add 16, add 14, so each time you add 2 fewer than you did before. Therefore, to find the next term, add 12 to 80: $80 + 12 = 92$. To find the next term, add 10 to 92: $92 + 10 = 102$. To find the next term, add 8 to 102: $102 + 8 = 110$. Therefore, the next three terms are 92, 102, 110.

76. **Answer choice (b) is the correct answer.** The rule for the sequence is *multiply by 2, multiply by 3*. Therefore, since we multiplied 72 by 2 to get to 144, multiply 144 by 3 to find the next number: $144 \bullet 3 = 432$.

77. **Answer choice (c) is the correct answer.** Set up the equation $0.4x = 0.25(240)$ and solve for x: $0.4x = 0.25(240) \rightarrow 0.4x = 60 \rightarrow x = 150$.

78. **Answer choice (a) is the correct answer.** The pattern is divide by 2, add 20, divide by 3, add 20, divide by 4. Therefore, to find the next term in the sequence, add 20 to 15: $20 + 15 = 35$. To find the next term, divide 35 by 5: $35 \div 5 = 7$. Therefore, the next two terms are 35, 7.

79. **Answer choice (b) is the correct answer.** The more sides a regular polygon has, the larger the measure of the interior angle. Therefore, the measure of the interior angle of a square is less than the measure of the interior angle of a regular pentagon, which is less than the interior angle of a regular hexagon, so (B) < (C) < (A).

80. **Answer choice (b) is the correct answer.** Set up the expression $8^2 – 2 + 9$ and simplify: $8^2 – 2 + 9 = 64 – 2 + 9 = 62 + 9 = 71$.

81. Answer choice (c) is the correct answer. The pattern is add 5, subtract 2, add 10, subtract 2, add 20, subtract 2. Therefore, the addition part of the pattern doubles each time, so to find the next number, add 40 to 59: 59 + 40 = 99.

82. Answer choice (d) is the correct answer. (A) equals 4 • 4 = 16. (B) equals 2 • 2 • 2 • 2 = 16. (C) equals 8. Therefore, (A) equals (B) but they do not equal (C).

83. Answer choice (b) is the correct answer. If we write the pattern in standard numbers, we get 30, 24, 18, 12. Therefore, the rule for the sequence is *subtract 6*, so the next number is 12 – 6 = 6 which is VI in roman numerals.

84. Answer choice (a) is the correct answer. Set up the expression $\frac{1}{5}$ • 35 – 7 and simplify: $\frac{1}{5}$ • 35 – 7 = 7 – 7 = 0.

85. Answer choice (a) is the correct answer. Set up the expression $0.2(10 \cdot \sqrt{64})$ and simplify: $0.2(10 \cdot \sqrt{64}) = 0.2(10 \cdot 8) = 0.2(80) = 16$.

86. Answer choice (a) is the correct answer. The area of triangle (A) equals (5 • 10) ÷ 2 = 25. The area of rectangle (B) equals 5 • 10 = 50. The area of trapezoid (C) equals 5 • (5 + 10) ÷ 2 = 37.5. Therefore, the area of (C) is greater than the area of (A) and less than the area of (B).

87. Answer choice (d) is the correct answer. The rule for the sequence is *subtract 9*, so the missing term equals 2, 989 – 9 = 2,980.

88. Answer choice (a) is the correct answer. A nickel is worth 5 cents, a dime is worth 10 cents, and a quarter is worth 25 cents. Find the value of (A): 8 dimes equals 80 cents, and 6 nickels equals 30 cents, so (A) equals 110 cents. Find the value of (B): 3 quarters equals 75 cents, 2 dimes equals 20 cents, and 1 nickel equals 5 cents, so (B) equals 100 cents. Find the value of (C): 4 quarters equal 100 cents, and 2 nickels equal 10 cents, so (C) equals 110 cents. Therefore, (A) and (C) are equal and more than (B).

89. Answer choice (a) is the correct answer. Set up the expression $32 \div (\frac{1}{9} \cdot 72)$ and simplify: $32 \div (\frac{1}{9} \cdot 72) = 32 \div 8 = 4$.

90. Answer choice (d) is the correct answer. Set up the equation $x - 0.1x = 180$ and solve for x: $x - 0.1x = 180 \rightarrow 0.9x = 180 \rightarrow x = 200$.

91. **Answer choice (c) is the correct answer.** There are 6 sixths in one whole, so there are 48 sixths in 8 because $6 \bullet 8 = 48$.

92. **Answer choice (d) is the correct answer.** Rewrite (A) as $0.6 \bullet 45$. Rewrite (C) as $0.\overline{6} \bullet 45$. Since (A), (B), and (C) each have a decimal multiplied by 45, just compare the decimals: $0.6 < 0.\overline{6} < 0.7$ so (A) < (C) < (B).

93. **Answer choice (c) is the correct answer.** Set up the equation $\sqrt{x} = 5 \bullet 6 - 26$ and solve for x: $\sqrt{x} = 5 \bullet 6 - 26 \rightarrow \sqrt{x} = 30 - 26 \rightarrow \sqrt{x} = 4 \rightarrow x = 16$.

94. **Answer choice (d) is the correct answer.** Find (A): the volume of a cube with sides measuring $2 = 2 \bullet 2 \bullet 2 = 8$. Find (B): the surface area of a cube with sides measuring $2 = (2 \bullet 2) \bullet 6 = 24$. Find (C): the side length of a cube with a volume of $1000 = \sqrt[3]{1000} = 10$. Therefore, (B) is greater than (C) which is greater than (A).

95. **Answer choice (c) is the correct answer.** This sequence is an "even odd sequence", meaning that there are separate patterns for the odd terms and the even terms. The rule for the odd terms, terms 1, 3, 5, 7, 9 …, is *add 2*. The rule for the even terms, terms 2, 4, 6, 8, 10 …, is *add 4*. The next term in the sequence is term 7, so it follows the odd rule of add 2 from the previous odd term. Therefore, the next term = 45 + 2 = 47.

96. **Answer choice (c) is the correct answer.** Find (A): 50% of 60% = 0.5 • 0.6 = 0.3. Find (B): 60% of 0.5 = 0.6 • 0.5 = 0.3. Find (C): 5% of 60 = 0.05 • 60 = 3. Therefore, (A) is equal to (B) and less than (C).

97. **Answer choice (b) is the correct answer.** Set up the expression $5^3 \div 5 + 10$ and simplify: $5^3 \div 5 + 10 = 125 \div 5 + 10 = 25 + 10 = 35$.

98. **Answer choice (b) is the correct answer.** Simplify (A): $\sqrt{9 + 16} = \sqrt{25} = 5$. Simplify (B): $\sqrt{25} = 5$. Simplify (C): $\sqrt{16} + \sqrt{9} = 4 + 3 = 7$. Therefore, (A) = (B) ≠ (C).

99. **Answer choice (d) is the correct answer.** The rule for the sequence is *subtract 4, subtract 4 subtract 1*. Since the last two terms shown were the result of subtracting 4 from each of the previous terms, find the next term by subtracting 1: 41 – 1 = 40.

100. **Answer choice (a) is the correct answer.** The pattern is subtract 7, subtract 6, subtract 5, subtract 4, so to find the next term subtract 3 from 58: 58 – 3 = 55.

101. Answer choice (b) is the correct answer. There are 10 dots in (A), 10 dots in (B), and 9 dots in (C). Therefore, (A) is equal to (B) and greater than (C).

102. Answer choice (c) is the correct answer. When multiplying a number by a positive power of 10, the exponent tells us how many times to move the decimal to the right. Therefore, (A) equals 700,000 and (C) equals 1,200,000. (B) equals 300 + 4000 which equals 4300. Therefore, (B) is less than both (A) and (C).

103. Answer choice (b) is the correct answer. The rule for the sequence is *add 2, add 3*. Since 3 was added to 60 to get to 63, add 2 to 63 to get the next term: 63 + 2 = 65.

104. Answer choice (b) is the correct answer. Set up the equation $\frac{3}{8}x = \frac{1}{5} \bullet 45$ and solve for x: $\frac{3}{8}x = \frac{1}{5} \bullet 45 \rightarrow \frac{3}{8}x = 9 \rightarrow x = 24$.

105. Answer choice (a) is the correct answer. Since the left and right sides of the triangle are congruent, the opposite angles are congruent. Therefore, A = B.

106. Answer choice (c) is the correct answer. The diameter in any circle is equal to twice the radius, or two radii added together. Therefore, since AD and DC are both radii, and AB is a diameter, AD + DC = AB.

107. Answer choice (b) is the correct answer. The rule for the number part of each term is *subtract 5*, so the number part of the next term is 30 – 5 = 25. The rule for the letter part of each term is skip 2 letters, so the letter part of the next term is Y because the alphabet goes V, W, X, Y, so to get from V to Y we skip 2 letters. Therefore, the next term is 25Y.

108. Answer choice (a) is the correct answer. Set up the equation $9x = 60 - 6$ and solve for x: $9x = 60 - 6 \rightarrow 9x = 54 \rightarrow x = 6$.

109. Answer choice (d) is the correct answer. The area of the square equals 4^2 which equals 16. The perimeter of the square equals 4 • 4 = 16. Therefore, the value of the perimeter is equal to the value of the area.

110. Answer choice (b) is the correct answer. (A) is $\frac{4}{9}$ shaded, (B) is $\frac{2}{9}$ shaded, and (C) is $\frac{6}{9}$ shaded. Therefore, the shaded area of (C) is three times the shaded area of (B) because $3 \bullet (\frac{2}{9}) = \frac{6}{9}$.

111. **Answer choice (a) is the correct answer.** Set up the equation $\frac{3}{5} \bullet 35 - x = \frac{2}{7} \bullet 21$ and solve for x: $\frac{3}{5} \bullet 35 - x = \frac{2}{7} \bullet 21 \rightarrow 21 - x = 6 \rightarrow -x = -15 \rightarrow x = 15$.

112. **Answer choice (d) is the correct answer.** The angle measuring 40° and the angle measuring a° are vertical angles, so they are congruent. Therefore, $a = 40$. The angle measuring b° forms a straight line with the angle measuring 40°, so they add up to 180°. Therefore, $b = 140$. The angle measuring b° and the angle measuring c° are vertical angles, so they are congruent. Therefore, $c = 140$, so b is equal to c and greater than a.

Reading

113. **Answer choice (b) is the correct answer.** The passage discusses why zoos are not ethical. While the passage does mention the advantages and disadvantages of zoos, it says the "advantages [of zoos] don't outweigh the disadvantages." Therefore, the main purpose of the passage is to argue that zoos are unethical.

114. **Answer choice (c) is the correct answer.** The passage says that the "advent of animal rights movements" has contributed to zoos being viewed as prisons. Since animal rights movements most likely do not support zoos, it would make sense that the passage is saying, "With the *arrival* of animal rights movements, zoos are being viewed as prisons for animals rather than shelters."

115. **Answer choice (c) is the correct answer.** The author is arguing that zoos are unethical because they don't provide animals with optimal living conditions. Therefore, the author of the passage is probably an animal rights advocate (animal rights advocates advocate, or stand up for, animal rights).

116. **Answer choice (a) is the correct answer.** The third paragraph presents the advantages of zoos which goes against the author's argument that zoos are unethical. Therefore, the third paragraph presents a counter argument.

117. **Answer choice (a) is the correct answer.** In the first paragraph, the passage states, "many animals are not provided with adequate living space and are often prevented from participating in activities that are important to them…" The author is stating this as an example of why zoos are bad.

118. **Answer choice (d) is the correct answer.** In the third paragraph, it mentions that the benefits of zoos are providing educational resources, providing economic resources, and providing jobs. The passage does not mention healing injured animals as a benefit of zoos.

119. **Answer choice (a) is the correct answer.** In the last sentence of the first paragraph, the passage states that the living conditions in zoos "lead to feelings of isolation, boredom, and loneliness" in animals. This suggests that animals in zoos experience mental effects due to their living conditions.

120. **Answer choice (d) is the correct answer.** The author made an argument and presented evidence and reasoning to persuade the reader into agreeing with him/her. Therefore, the tone of the passage is persuasive or insistent.

121. **Answer choice (b) is the correct answer.** The passage states in the second paragraph that "when animals imprint on humans, this prevents them from experiencing their own identities as animals." This means that humans influence how animals behave, so animals learn behaviors from humans.

122. **Answer choice (c) is the correct answer.** The author compares zoos to prisons in the first paragraph, and then goes on to discuss the unsatisfactory living conditions of zoos. Therefore, we can assume that the author is comparing the unsatisfactory living conditions of zoos and prisons.

123. **Answer choice (b) is the correct answer.** In the first paragraph, the passage states, "The name 'praying mantis' comes from the structure and shape of the insect's body."

124. **Answer choice (d) is the correct answer.** In the second paragraph, the passage states that the praying mantis' ability to camouflage, ability to rotate its head 180 degree, and its legs are helpful for hunting. The passage does not mention the praying mantis being able to move slowly and stealthily.

125. **Answer choice (d) is the correct answer.** In the second paragraph, the passage states that the praying mantis has two large compound eyes and three simple eyes, so five eyes in total.

126. **Answer choice (a) is the correct answer.** The passage says that the praying mantis is a "formidable" predator and then goes on to discuss why the praying mantis is a great hunter. Therefore, the word "formidable" is positive and used to describe a good hunter, so "powerful" makes the most sense.

127. **Answer choice (d) is the correct answer.** Entomology is the study of insects, so it would make sense that a passage about the praying mantis would be in a book on entomology.

128. **Answer choice (a) is the correct answer.** The author thinks praying mantises are formidable, or powerful, predators and can catch things over twice their size. Therefore, the author would probably agree that you should underestimate them based on their size.
129. **Answer choice (c) is the correct answer.** In the second paragraph, the passage says that the praying mantis' ability to turn its head 180 degrees is useful for hunting. Therefore, it is most likely useful for scanning its surroundings for prey to hunt.

130. **Answer choice (a) is the correct answer.** Paragraph two describes the physical characteristics of the praying mantis while paragraph three is not very descriptive.

131. **Answer choice (b) is the correct answer.** The passage states that the praying mantis uses the spikes on its front legs to "snare" its prey. Therefore, snaring prey means to trap prey.

132. **Answer choice (b) is the correct answer.** The last line of the passages says that it was surprising that the "catch was made at night" because "the praying mantis has evolved to hunt in daylight."

133. **Answer choice (a) is the correct answer.** The passage is about Della sacrificing her hair to pay for a gift for Jim because she loves him. Therefore, the main theme is love and sacrifice.

134. **Answer choice (b) is the correct answer.** A metaphor is a figure of speech that describes something in a way that isn't literally true. In the line, "down rippled the brown cascade," Della's hair is being compared to a brown cascade.

135. **Answer choice (b) is the correct answer.** Right after Della's face lost its color, she pulled down her hair. She then went and sold her hair to buy Jim a gift. Therefore, we can assume that her face lost its color because she realized that she had to sell her hair to buy a gift for Jim.

136. **Answer choice (d) is the correct answer.** The first paragraph of the passage talks about Della standing by the window contemplating how she is going to buy a gift for Jim. She then realizes that she can sell her hair, so we can assume that she sold her hair to get money to buy a gift for Jim.

137. **Answer choice (b) is the correct answer.** Della is thoughtful and selfless because she gave up her hair for Jim's present. She is resourceful because when she didn't have the money to

buy a gift, she used her resources (her hair). She is not pessimistic because pessimistic means having a negative outlook.

138. **Answer choice (c) is the correct answer.** Della's face lost its color when she realized she had to sell her hair, so she felt sad about having to sell it. However, she did not hesitate and knew that she had to sell her hair in order to buy a gift for Jim.
139. **Answer choice (c) is the correct answer.** The passage ends with Della selling her hair for $20 so she can buy Jim a gift. Therefore, it would make sense that the next part of the story is about Della buying Jim's gift, so it would probably describe the gift that Della picks out for Jim.

140. **Answer choice (a) is the correct answer.** The first paragraph explains that Della does not have enough money to buy a gift for Jim which is the main conflict in the story.

141. **Answer choice (c) is the correct answer.** By repeating the word "gray" the author is showing that Della's situation is "gray" and gloomy. Therefore, the line emphasizes how unfortunate Della's situation is.

142. **Answer choice (d) is the correct answer.** A simile is a comparison using the words "like" or "as." The phrase "Della's beautiful hair fell about her rippling and shining like a cascade of brown waters" compares Della's hair to a shining cascade of brown waters using the word "like."

143. **Answer choice (a) is the correct answer.** In the first paragraph, it says that people were "probably tricked by" the question, "Is a tomato a fruit or vegetable?" It then goes on to say that "the answer is actually trickier than most people know." Therefore, we can assume that not everyone knows that a tomato is legally a vegetable.

144. **Answer choice (b) is the correct answer.** In the second paragraph, the passage states, "The Supreme Court devised its own rules for distinguishing between fruits and vegetables."

145. **Answer choice (a) is the correct answer.** The last line of the second paragraph says that tomatoes "are scientifically considered fruits."

146. **Answer choice (d) is the correct answer.** The passage uses the word "discrepancy" to describe the fact that tomatoes are botanically a fruit and legally a vegetable. Therefore, the passage is talking about the difference between the botanical and legal classifications of tomatoes.

147. **Answer choice (c) is the correct answer.** The third paragraph states that the Supreme Court legally classified tomatoes as a vegetable because "vegetables are generally served with the main part of a meal."

148. **Answer choice (b) is the correct answer.** The third paragraph states, "the Supreme Court had to rule on whether tomatoes should be taxed as a fruit or a vegetable …"

149. **Answer choice (d) is the correct answer.** The passage starts by talking about the confusion around the classification of tomatoes and then goes on to discuss the reason for the confusion: the tomato is botanically a fruit while it is legally a vegetable.

150. **Answer choice (c) is the correct answer.** The passage starts by talking about the confusion around the classification of tomatoes and then goes on to discuss the reason for the confusion: the tomato is botanically a fruit while it is legally a vegetable. Therefore, the best title is "A Confusing Classification."

151. **Answer choice (a) is the correct answer** The passages says that the Supreme Court "devised" their own definition, which means they came up with, or created, their own definition.

152. **Answer choice (b) is the correct answer.** In the last sentence of the third paragraph, the passage says that most people use the legal definition to classify tomatoes, so most people classify a tomato as a vegetable based on the legal definition. Therefore, the botanical classification of tomatoes as fruits does not have much influence on how people classify tomatoes.

153. **Answer choice (b) is the correct answer.** A diligent student is a hardworking, or conscientious, student.

154. **Answer choice (a) is the correct answer.** A temperate climate is a mild, or moderate, climate.

155. **Answer choice (a) is the correct answer.** A unanimous decision is one where everyone agrees, which is the same as an uncontested decision.

156. **Answer choice (d) is the correct answer.** A pervasive idea is a universal, common, or prevalent idea.

157. **Answer choice (c) is the correct answer.** A contentious stance is one that causes arguments or controversy, which is the same as a controversial stance.

158. **Answer choice (b) is the correct answer.** To ameliorate symptoms means to lessen, or alleviate, symptoms.

159. **Answer choice (c) is the correct answer.** An inconceivable truth is an unbelievable, or implausible, truth.

160. **Answer choice (d) is the correct answer.** To concede defeat means to admit, or accept, defeat.

161. **Answer choice (c) is the correct answer.** A dilapidated home is a run down, or decrepit, home.

162. **Answer choice (a) is the correct answer.** An obstinate horse is a headstrong, or stubborn, horse.

163. **Answer choice (b) is the correct answer.** A grave error is a significant, or serious, error.

164. **Answer choice (d) is the correct answer.** A tranquil lake is a calm, or peaceful, lake.

165. **Answer choice (d) is the correct answer.** A churlish attitude is an impolite, or rude, attitude.

166. **Answer choice (c) is the correct answer.** An ornate room is a decorated, embellished, or elaborate room.

167. **Answer choice (b) is the correct answer.** To chastise someone means to reprimand, or scold, someone.

168. **Answer choice (a) is the correct answer.** To pacify a baby means to calm, or soothe, a baby.

169. **Answer choice (a) is the correct answer.** A belittling comment is meant to put someone down or make them feel badly about themselves, which is the same as a deprecating comment.

170. **Answer choice (a) is the correct answer.** Counterfeit money is not real, or fake, money.

171. **Answer choice (d) is the correct answer.** A precarious situation is an uncertain, or unstable, situation.

172. **Answer choice (d) is the correct answer.** An unintentional lie is one that is not made on purpose, which is the same as an accidental lie.

173. **Answer choice (b) is the correct answer.** A coherent essay is one that is easy to understand, or is clear.
174. **Answer choice (c) is the correct answer.** A competent worker is a skilled, or capable, worker.

Mathematics

175. **Answer choice (c) is the correct answer.** When subtracting whole numbers, line up the digits and subtract down. If you do this, you'll get 2,669 as the answer.

176. **Answer choice (c) is the correct answer.** Change 4 ⅓ into an improper fraction to get 13/3. Now multiply 9/11 by 13/3 by multiplying straight across to get 117/33. Simplify by dividing the top and bottom by 3 to get 39/11.

177. **Answer choice (d) is the correct answer.** 2 hours past 6:55 a.m is 8:55 a.m., and 15 minutes past that is 9:10 a.m.

178. **Answer choice (b) is the correct answer.** Use PEMDAS, so perform the subtraction inside of the parentheses first to get 11 – 4(2). Now multiply the 4 and 2 to get 11 – 8 which equals 3.

179. **Answer choice (a) is the correct answer.** Cross multiply and solve: $8(25) = 10a \rightarrow 200 = 10a \rightarrow a = 20$.

180. **Answer choice (b) is the correct answer.** To find the percent discount, divide the difference in the prices by the original price and multiply the result by 100. The difference between 120 and 84 is 36, 36 divided by 120 is 0.3, and 0.3 times 100 equals 30% discount.

181. **Answer choice (b) is the correct answer.** The probability of an event is equal to the ratio of favorable outcomes to total outcomes. There are a total of 8 black and yellow marbles, so there are 8 favorable outcomes. There are a total of 16 marbles, so there are 16 total outcomes. Therefore, the probability is 8 out of 16 which simplifies to $\frac{1}{2}$.

182. **Answer choice (a) is the correct answer.** Supplementary angles add up to 180°. Since angles 1 and 4 form a straight line, they add up to 180°.

183. **Answer choice (d) is the correct answer.** There are 1000 grams in 1 kilogram, so to convert grams to kilograms, divide by 1000: 320 ÷ 1000 = 0.32.

184. **Answer choice (b) is the correct answer.** If we order the people from shortest to tallest, we get Patrick < Chris = Linda < Sam = Kelly. From this, we can see that Patrick is the shortest, so he is shorter than Sam.

185. **Answer choice (b) is the correct answer.** The distributive property states that multiplying the sum or difference of two or more numbers by a number will give the same result as multiplying each number individually by the number and then adding or subtracting the products. The equation in answer choice (b) shows that multiplying 3 by the difference between 5 and 2 is the same as multiplying 5 and 2 each by 3 and then finding the difference.

186. **Answer choice (c) is the correct answer.** There are 3 feet in 1 yard, so to find the number of feet in 12 yards, multiply 12 by 3: 12 • 3 = 36.

187. **Answer choice (d) is the correct answer**. Set up and solve the following proportion using l as the length of the rectangle: $\frac{2}{5} = \frac{6}{l} \rightarrow 2l = 30 \rightarrow l = 15$ in. Now find the perimeter by adding up all of the sides: 6 + 6 + 15 + 15 = 42 inches.

188. **Answer choice (b) is the correct answer.** First, add $2k$ to both sides of the equation to get $3 = 3k + 18$. Subtract 18 from both sides of the equation to get $-15 = 3k$. Divide both sides of the equation by –3 to get $k = -5$.

189. **Answer choice (a) is the correct answer.** When dividing decimals, we need to move the decimal point in the divisor all the way to the right. We need to move the decimal point in the dividend the same number of times in the same direction, so we get 192.6 ÷ 6. If you perform this division, you will get 32.1.

190. **Answer choice (a) is the correct answer.** A triangular pyramid is a 3d figure with a triangular base and three triangular faces that meet at a point.

191. **Answer choice (b) is the correct answer.** Since we have the new coordinates of point A, we need to work backwards to find the starting coordinates. Therefore, instead of moving down and right, we need to move up and left. Move 2 units up by adding 2 to the y-coordinate to get a y-coordinate of 9. Move 3 units left by subtracting 3 from the x-coordinate to get 0. Therefore, the starting coordinates of point A were (0, 9).

192. **Answer choice (a) is the correct answer.** The 3 is in the hundredths place, so it represents 3 hundredths or $\frac{3}{100}$.

193. **Answer choice (c) is the correct answer.** The range of a data set is the difference between the highest and lowest numbers. The highest number in this data set is 24 and the lowest is 7: 24 – 7 = 17.

194. **Answer choice (d) is the correct answer.** Since angles ABD and DBC form a straight line, they add up to 180°. Therefore, the measure of angle DBC equals 180° – 35° = 145°.

195. **Answer choice (a) is the correct answer.** Change all of the fractions to have a common denominator of 8: $2\frac{6}{8}-\frac{4}{8}+\frac{5}{8}$. Combine the numerators of the fractions and keep the denominators the same to get $2\frac{7}{8}$.

196. **Answer choice (c) is the correct answer.** A pentagon is a five sided shape.

197. **Answer choice (d) is the correct answer.** Simplify the expression to 16 + 7 – 29. Add 16 and 7 to get 23 – 29 which equals –6.

198. **Answer choice (a) is the correct answer.** Multiply the number of square feet of fabric Cal bought by the price per square foot to find the total cost: 5.6 • 0.85 = $4.76.

199. **Answer choice (d) is the correct answer.** Find 6% of $65 to find the amount the sales tax added to the cost: 6% of $65 = 0.06 • $65 = $3.90.

200. **Answer choice (a) is the correct answer.** The intersection of two sets consists of the numbers they have in common. Therefore, the intersection of the given sets is {1, 5, 11}.

201. **Answer choice (b) is the correct answer.** If Jennie is 3 years older than Carl, then Carl is 3 years younger than Jennie, so Carl's age = 28 – 3 = 25. Isaac is five years younger than Carl, so Isaac's age is 25 – 5 = 20. If Isaac is twice as old as Becky, then Becky is half as old as Isaac, so Becky's age = 20 ÷ 2 = 10 years.

202. **Answer choice (d) is the correct answer.** 142 • 39 = 5538. To see a step-by-step solution, use the following online calculator: Multi-Digit Multiplication Calculator

203. **Answer choice (c) is the correct answer.** If the probability of choosing a pink ball is ⅔, then ⅔ of the balls are pink. Therefore, the total number of balls must be a multiple of 3, and 27 is the only multiple of 3 in the answer choices.

204. Answer choice (c) is the correct answer. Non-consecutive angles in a parallelogram are congruent. Therefore, Angle C is equal to Angle B.

205. Answer choice (d) is the correct answer. The line $y = x + 6$ is written in the form $y = mx + b$, where m represents the slope of the line and b represents the y-intercept. We can rewrite $y = x + 6$ as $y = 1x + 6$, so the slope of the line is 1.

206. Answer choice (c) is the correct answer. A ray is a part of a line with a fixed starting point and no endpoint. A ray is named by using the starting point as the first letter and any other point that it passes through as the second letter, so this ray is ray JK.

207. Answer choice (d) is the correct answer. Subtract 12 from both sides of the equation to get $x = –5$.

208. Answer choice (b) is the correct answer. The diameter of a circle is equal to twice the radius: 6 • 2 = 12 m.

209. Answer choice (a) is the correct answer. Plug 13 in for y in the given equation and solve for x: $13 = –2x + 7 \rightarrow 6 = –2x \rightarrow x = –3$.

210. Answer choice (a) is the correct answer. 9 people is three times 3 people. If we multiply the number of people painting the fence by 3, the time it takes to paint the fence gets divided by 3: 6 ÷ 3 = 2 hours. TIP: for this problem, we know that if there are more people painting the fence, it should take less time. Therefore, we can eliminate answer choices (b) and (d).

211. Answer choice (c) is the correct answer. Find x by using the pythagorean theorem: $a^2 + b^2 = c^2 \rightarrow 6^2 + x^2 = 8^2 \rightarrow 36 + x^2 = 64 \rightarrow x^2 = 28 \rightarrow x = \sqrt{28}$.

212. Answer choice (d) is the correct answer. To find the ratio of two quantities, the units must be the same. There are 4 quarts in 1 gallon, so 2 gallons equals 8 quarts. So the ratio of 6 quarts to 2 gallons equals 6:8 which simplifies to 3:4.

213. Answer choice (b) is the correct answer. This year they raised $47.35 more than last year, so last year they raised $47.35 fewer than this year. Subtract $47.35 from $235.47 to get $188.12.

214. Answer choice (a) is the correct answer. If the probability of choosing a heart sticker is $\frac{2}{7}$, then $\frac{2}{7}$ of the stickers are heart stickers. Find the total number of stickers in the bag

by dividing the number of heart stickers by $\frac{2}{7}$: $4 \div \frac{2}{7} = 4 \bullet \frac{7}{2} = 14$ total stickers.

Subtract the number of star stickers and heart stickers from the total stickers to find the number of circle stickers: 14 – 7 – 4 = 3 circle stickers.

215. Answer choice (d) is the correct answer. To change a decimal into a percent, move the decimal point two times to the right. Therefore, 0.73 = 73%.

216. Answer choice (c) is the correct answer. A number is written in scientific notation when a number between 1 and 10 is multiplied by a power of 10. The power, or exponent, tells us how many times to move the decimal point: positive means move to the right and negative means move to the left. To write 54,000 in scientific notation, change it into a decimal that is in between 1 and 10: 54,000 becomes 5.4. To get from 5.4 to 54,000, we need to move the decimal point 4 times to the right. Therefore, we can write 54,000 as 5.4×10^4.

217. Answer choice (a) is the correct answer. The equation for the circumference of a circle is $C = 2\pi r$. Find the radius by plugging in 12π for C and solving for r: $12\pi = 2\pi r \rightarrow r = 6$.

218. Answer choice (b) is the correct answer. The average of a data set is equal to the sum of the numbers divided by the number of terms. Find the sum of the numbers: 8 + 14 + 23 + 6 + 19 = 70. There are 5 numbers, so divide 70 by 5: 70 ÷ 5 = 14.

219. Answer choice (a) is the correct answer. To find where the two lines intersect, set them equal to each other and solve for x: $2x + 5 = -x - 4 \rightarrow 3x + 5 = -4 \rightarrow 3x = -9 \rightarrow x = -3$. There is only one answer choice with an x-coordinate of –3, so we do not need to find the y-coordinate. If you want to find the y-coordinate, plug the value of x into either equation and solve for y: $y = 2(-3) + 5 \rightarrow y = -6 + 5 \rightarrow y = -1$. Therefore, the point of intersection is (–3, –1).

220. Answer choice (a) is the correct answer. Use the equation $d = rt$ to find the distance driven, plugin in 2.5 for t and 60 for r: $d = 60 \bullet 2.5 = 150$ miles.

221. Answer choice (b) is the correct answer. Solve the inequality to find the possible values of x: $10 - 4x \geq 6x \rightarrow 10 \geq 10x \rightarrow 1 \geq x$ or $x \leq 1$. Therefore, x can equal 1.

222. Answer choice (d) is the correct answer. The surface area of a cube equals $6s^2$, where s is the side length of the cube. Set the surface area of 96 equal to this equation and solve for s: $96 = 6s^2 \rightarrow 16 = s^2 \rightarrow s = 4$ in. The volume of a cube equals s^3, so the volume of a cube with a side length of 4 in equals 4^3 which equals 64 in^3.

223. Answer choice (b) is the correct answer. If 8 pencils cost \$5, then 4 pencils cost \$2.50. Therefore, 12 pencils costs \$5 + \$2.50 = \$7.50.

224. Answer choice (d) is the correct answer. To find the shaded area, subtract the area of the circle from the area of the square. The area of a square equals s^2, so the area of a square with a side length of 6 m = $6^2 = 36$ m^2. The area of a circle equals πr^2. The radius of the circle is half of the side length of the square, so the radius is 3 m. The area = $\pi(3)^2 = 9\pi$, so the shaded area equals $36 – 9\pi$ meters.

225. Answer choice (c) is the correct answer. Since all of the sides are integers, the smallest possible side length is 1. If the two small sides of the rectangle are 1, then the longer side is 5 because 1 + 1 + 5 + 5 equals a perimeter of 12 inches.

226. Answer choice (a) is the correct answer. Find the area of the wall by multiplying the dimensions: 12 • 14 = 168 sq feet. Find the total number of cans needed by dividing the area of the wall by the number of square feet covered per can: 168 ÷ 24 = 7 cans. Find the total cost by multiplying the number of cans by the cost per can: 7 • 3 = $21.

227. Answer choice (d) is the correct answer. Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 3 is the greatest common factor of 27 and 42 because it is the largest number that 27 and 42 are both divisible by.

228. Answer choice (b) is the correct answer. $16^2 = 256$, so the square root of 256 = 16.

229. Answer choice (c) is the correct answer. Set up and solve the equation $5x + 2x = 28$, where $5x$ represents the larger number and $2x$ represents the smaller number: $5x + 2x = 28 \rightarrow 7x = 28 \rightarrow x = 4$. Therefore, the smaller number = 2 • 4 = 8.

230. Answer choice (d) is the correct answer. Set up and solve the following equation using x to represent the number we are solving for: $18 = 0.2 \cdot x \rightarrow x = 90$.

231. Answer choice (a) is the correct answer. Solve the inequality by first subtracting 12 from both sides to get $–2x > 16$. Divide both sides by –2 and remember to flip the inequality sign because we are dividing by a negative number: $x < –8$.

232. Answer choice (b) is the correct answer. Solve for the number of apples by setting up the following proportion, using a for the number of apples: $\frac{3}{5} = \frac{12}{a} \rightarrow 3a = 60 \rightarrow a = 20$ apples. Find the number of oranges by finding 25% fewer than the number of apples: 20 – 0.25 • 20 = 20 – 5 = 15 oranges.

233. Answer choice (c) is the correct answer. $2^3 = 2 \cdot 2 \cdot 2 = 8$, and $8^2 = 8 \cdot 8 = 64$.

234. Answer choice (b) is the correct answer. 6 out of 18 girls play basketball which equals 6/18. Simplify 6/18 to get 1/3.

235. Answer choice (d) is the correct answer. There are a few ways to solve this problem. One way is to divide the fraction of the can of paint by the fraction of the wall it can cover: $\frac{3}{4} \div \frac{6}{11} = \frac{3}{4} \bullet \frac{11}{6} = \frac{11}{8}$. You can also find the amount of paint needed to cover $\frac{1}{11}$ of the wall by dividing the amount of paint needed to cover $\frac{6}{11}$ of the wall by 6:

$\frac{3}{4} \div 6 = \frac{3}{4} \bullet \frac{1}{6} = \frac{1}{8}$. Since $\frac{1}{8}$ can of paint covers $\frac{1}{11}$ of the wall, multiply $\frac{1}{8}$ by 11 to find how many cans of paint are needed to cover $\frac{11}{11}$ or one full wall: $\frac{1}{8} \bullet 11 = \frac{11}{8}$.

236. Answer choice (d) is the correct answer. In a 3d figure, edges are where two faces meet. A cube has 12 edges.

237. Answer choice (c) is the correct answer. The circumference of a circle can be found using the equation $C = 2\pi r$. Find the radius of the circle by plugging in 36π for the C and solving for r: $36\pi = 2\pi r \rightarrow r = 18$ ft. The area of a circle can be found by using the equation $A = \pi r^2$. Find the area of the circle by plugging in 18 for r: $A = \pi(18)^2 = 324\pi$ ft^2.

238. Answer choice (a) is the correct answer. The revenue in June was \$5,000 and the revenue in July was \$25,000: \$25,000 – \$5,000 = \$20,000.

Language

239. Answer choice (c) is the correct answer. A quotation mark is needed after the word "tomorrow" because it is the end of a direct quote.

240. Answer choice (a) is the correct answer. A comma is needed in between Detroit and Michigan because a comma is always needed in between a city and state.

241. Answer choice (d) is the correct answer. There are no mistakes in answer choices (a), (b), and (c).

242. **Answer choice (c) is the correct answer.** The semicolon needs to be deleted because the phrase after the semi-colon, "and it helps me clear my head," is not a complete sentence. A semi-colon can only be placed in between two complete sentences.

243. **Answer choice (a) is the correct answer.** The phrase "had wore" should be "had worn" because "worn" is the past participle of "wear." Use the past participle with words like "had," "has," "have," etc.

244. **Answer choice (b) is the correct answer.** "Spring" should not be capitalized because seasons are not capitalized unless they are part of a proper noun.

245. **Answer choice (b) is the correct answer.** There needs to be a question mark at the end of the sentence since the sentence is a question.

246. **Answer choice (c) is the correct answer.** "Effect" needs to be replaced with "affect" because it is being used as a verb. "Affect" is a verb and "effect" is a noun.

247. **Answer choice (a) is the correct answer.** "Less" needs to be replaced with "fewer" because "fewer" is used for plural nouns and "less" is used for singular nouns. "Opinions" is a plural noun, so it needs to be used with "fewer."

248. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

249. **Answer choice (a) is the correct answer.** The phrase in this answer choice is a fragment because it is missing a subject and a main verb.

250. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

251. **Answer choice (c) is the correct answer.** A colon must come after a complete sentence, so the colon needs to be removed in this sentence. "Important qualities in a friend are," is not a complete sentence.

252. **Answer choice (b) is the correct answer.** Since the car belongs to Maria, there needs to be an apostrophe in "Maria's" to show possession.

253. **Answer choice (b) is the correct answer.** A comma is needed after the word "shouted" because a comma is always needed before a direct quote.

254. **Answer choice (c) is the correct answer.** "It's" needs to be replaced with "its" because it is showing possession. "It's" means "it is."

255. **Answer choice (c) is the correct answer.** We cannot compare Mr. Vercelli's cookies to Mrs. Green. The end of the sentence would need to say, "Mrs. Green's cookies."

256. **Answer choice (a) is the correct answer.** "Northeast" needs to be capitalized because directions are capitalized when they are naming a specific region, and the Northeast is a specific region of the U.S.

257. **Answer choice (c) is the correct answer.** "Quick" needs to be changed to "quickly" because it is modifying the verb "stopped." Adverbs are used to modify verbs.

258. **Answer choice (b) is the correct answer.** The three verbs in the sentence need to be the same form. For example, we could change the sentence to, "Carl enjoys hiking, rock climbing, and scuba diving."

259. **Answer choice (c) is the correct answer.** "Your" needs to be replaced with "you're" which means "you are." "Your" is used to show possession.

260. **Answer choice (b) is the correct answer.** "Me" needs to be replaced with "I" because mom and I are the subjects of the sentence. "I" is a subject pronoun and "me" is an object pronoun.

261. **Answer choice (a) is the correct answer.** "Further" needs to be replaced with "farther" which is used for physical distances. "Further" is used for abstract concepts.

262. **Answer choice (a) is the correct answer.** "Couldn't hardly" is a double negative and needs to be replaced with "could hardly."

263. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

264. **Answer choice (a) is the correct answer.** A comma is needed after "yellow" because commas are used to separate items in a list.

265. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

266. **Answer choice (b) is the correct answer.** There needs to be a period at the end of the sentence.

267. **Answer choice (a) is the correct answer.** There needs to be a comma after the phrase, "After working for twelve hours straight," because it is a dependent clause.

268. **Answer choice (a) is the correct answer.** The verb "were" is referring to the bag of apples which is singular. Therefore, "were" should be replaced with "was" since "was" is singular.

269. **Answer choice (c) is the correct answer.** "Restuarant" is spelled incorrectly and should be spelled "restaurant."

270. **Answer choice (b) is the correct answer.** "Acheive" is spelled incorrectly and should be spelled "achieve."

271. **Answer choice (c) is the correct answer.** "Amatuer" is spelled incorrectly and should be spelled "amateur."

272. **Answer choice (a) is the correct answer.** "Bizzarre" is spelled incorrectly and should be spelled "bizarre."

273. **Answer choice (b) is the correct answer.** "Vaccuum" is spelled incorrectly and should be spelled "vacuum."

274. **Answer choice (c) is the correct answer.** "Accomodating" is spelled incorrectly and should be spelled "accommodating."

275. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), or (c).

276. **Answer choice (c) is the correct answer.** "Vegatables" is spelled incorrectly and should be spelled "vegetables."

277. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), or (c).

278. **Answer choice (b) is the correct answer.** "Aquired" is spelled incorrectly and should be spelled "acquired."

279. **Answer choice (d) is the correct answer.** The second part of the sentence is an unlikely result of the first part. Since Kinsey spent hours studying, it is unlikely that she would receive a low grade. Therefore, the word in the blank should be something similar to "however" or "but." The words "therefore," "for instance," and "moreover" are used in between two ideas that are similar, not contrasting.

280. **Answer choice (b) is the correct answer.** Answer choice (a) is awkward because of the phrase "are what I wore" at the end, so it is incorrect. Answer choice (c) does not include a subject, so it is incorrect. Answer choice (d) is incorrect because "wear" is present tense, but the "was" in the first part of the sentence is past tense.

281. **Answer choice (d) is the correct answer.** The topic "The Origin of Valentine's Day" would discuss how Valentine's Day originated or started. None of the answer choices provide information about how Valentine's Day started.

282. **Answer choice (b) is the correct answer.** The second sentence is saying what will happen if you do not clean your room. Therefore, the word "otherwise" fits best in the blank because it means "or else" or "if not."

283. **Answer choice (a) is the correct answer.** Answer choice (b) is incorrect because it says that my sister is topped with pecans, not the pie. Answer choice (c) is incorrect because placing the "I enjoyed" at the end of the sentence is awkward. Answer choice (d) is incorrect because it says that the subject, I, is topped with pecans, not the pie.

284. **Answer choice (c) is the correct answer.** Answer choice (a) is incorrect because the verbs should all be the same tense. Answer choice (b) is incorrect because the verbs should be *-ing* verbs. Answer choice (d) is incorrect because the word "being" should be "are."

285. **Answer choice (c) is the correct answer.** Answer choice (a) is incorrect because Rosa Parks played a huge role in the Civil Rights Movement, so that topic would require at least a few pages to write about. Answer choice (b) is incorrect because immigration laws are complex and cannot be written about in one paragraph. Installing photoshop is pretty straightforward and wouldn't require many steps, so it could fit into a one-paragraph article.

286. **Answer choice (a) is the correct answer.** The paragraph is about how libraries are becoming less popular for a variety of reasons. Therefore, the topic sentence, "Libraries are becoming more obsolete," fits the main idea of the paragraph. (Obsolete means outdated).

287. **Answer choice (c) is the correct answer.** The creation of cubism and Picasso's role in the invention of collage art are examples of the contributions he made to modern art.

288. **Answer choice (b) is the correct answer.** Answer choices (a) and (c) are incorrect because they are not a complete sentence, and there needs to be a complete sentence after the comma since the phrase before the comma is an independent clause. Answer choice (d) is incorrect because the phrase "my leg I hurt" is awkward.

289. **Answer choice (d) is the correct answer.** Answer choices (a) and (b) are incorrect because they both say that the flock of birds was jumping on the trampoline. Answer choice (c) is incorrect because it is a fragment.

290. **Answer choice (a) is the correct answer.** Increasing your child's confidence is important when riding a bike, so this tip fits under the given topic.

291. **Answer choice (d) is the correct answer.** The main idea of the paragraph is that California housing prices continue to rise and residents are having trouble finding or keeping houses. The topic sentence in answer choice (d) introduces this main idea because it talks about how the housing crisis (the rising prices) continue to escalate or become worse.

292. **Answer choice (a) is the correct answer.** Answer choices (b), (c), and (d) are all awkward because of the phrases "needed of you" and "needed by you."

293. **Answer choice (b) is the correct answer.** Researching the core values of a school is important when choosing which college to attend; you will want to choose a school with values that you agree with.

294. **Answer choice (d) is the correct answer.** The main point of the paragraph is to provide information about Alexander the Great's military accomplishments. The last line does not provide information about his military accomplishments.

295. **Answer choice (b) is the correct answer.** The first part of the added sentence, "Others may prefer dogs," tells us that this sentence needs to be placed after a sentence that discusses a preference other than dogs. Sentence 2 talks about how some people prefer cats, so it makes sense to put the added sentence after Sentence 2.

296. **Answer choice (b) is the correct answer.** The main point of the passage is to discuss the author's trip to California. The size of California is irrelevant to this main point.

297. **Answer choice (a) is the correct answer.** The passage discusses how the Constitution divides the government into branches, and then goes on to provide information about the

three branches. The added sentence is a good introductory sentence for this paragraph because it is a general statement about how the Constitution provides a framework for government (the framework being the branches).

298. **Answer choice (c) is the correct answer.** This sentence awkwardly breaks up sentences 2 and 4. Sentence 2 talks about how some people think reindeers are made up, and Sentence 4 clarifies that they are real animals. Therefore, Sentence 4 should come directly after Sentence 2, and we should delete Sentence 3.

Practice Test 2

Verbal Skills

1. **Answer choice (a) is the correct answer.** Empathy, compassion, and sympathy all mean caring about or understanding other people's feelings. Apathy means not caring, or being indifferent, so it does not belong.

2. **Answer choice (d) is the correct answer.** A janitor uses a mop to do his/her job, and a hairdresser uses scissors to do his/her job.

3. **Answer choice (d) is the correct answer.** Genuine means honest, which is closest in meaning to sincere.

4. **Answer choice (c) is the correct answer.** Miserly means greedy, which is the opposite of generous.

5. **Answer choice (b) is the correct answer.** If you order the people from the least amount to the most amount of water drank, you will get Rachel, Jack, Jill. Therefore, Rachel did not drink more water than Jill.

6. **Answer choice (a) is the correct answer.** Cliche is normally used to describe phrases, words, or opinions that are common and unoriginal. This is closest in meaning to overused.

7. **Answer choice (a) is the correct answer.** Mature, sophisticated, and cultured all mean learned, knowledgeable, or experienced. Naive means inexperience, so it does not belong.

8. **Answer choice (c) is the correct answer.** While we know that all members of the red team have to wear red shirts, we don't know that only members of the red team wear red shirts. Therefore, it is uncertain if Zach is on the red team.

9. **Answer choice (d) is the correct answer.** Propose means to put forward, or offer, something, normally an idea or plan. This is closest in meaning to suggest.

10. **Answer choice (c) is the correct answer.** A collar, button, and sleeve are all parts of a blouse. Since blouse is the general category, it does not belong.

11. **Answer choice (a) is the correct answer.** Suggested is something that is optional and necessary is something that is needed, so suggested is less extreme than necessary. Likely means probably while definite means certain, so likely is less extreme than definite.

12. **Answer choice (a) is the correct answer.** Disagreement leads to conflict, and isolation leads to loneliness.

13. **Answer choice (b) is the correct answer.** Monday, Wednesday, and Friday are all weekdays. Sunday is a weekend day, so it does not belong.

14. **Answer choice (a) is the correct answer.** An inch is a smaller unit than a foot and they both measure the same thing: distance. A pint is a smaller unit than a gallon and they both measure the same thing: volume.

15. **Answer choice (c) is the correct answer.** We know that Britney and Anthony both ran more miles than Torie, but we do not know the relationship between the number of miles that Anthony and Britney ran.

16. **Answer choice (b) is the correct answer.** Rain, sleet, and snow are all types of precipitation. Since precipitation is the general category, it does not belong.

17. **Answer choice (a) is the correct answer.** Misgiving, uncertainty, and doubt are all negative and mean worry, skepticism, or mistrust. Hope is positive and means optimism, so it does not belong.

18. **Answer choice (c) is the correct answer.** Ascend means to go up, or climb, which is the opposite of fall.

19. **Answer choice (d) is the correct answer.** Hydrogen, iron, and carbon are all elements. Water is a compound, so it does not belong.

20. **Answer choice (b) is the correct answer.** Concise means short or brief, which is the opposite of wordy.

21. **Answer choice (c) is the correct answer.** Unwavering has the same meaning as consistent, and hallowed has the same meaning as sacred.

22. **Answer choice (d) is the correct answer.** A monkey, ape, and orangutan, are all types of primates. Since primate is the general category, it does not belong.

23. **Answer choice (a) is the correct answer.** Imply means to suggest or hint at something, which most nearly means indicate.

24. **Answer choice (b) is the correct answer.** We know that every student in Mr. Toms's class is taller than 5 ft. Therefore, since Derek is in Mr. Toms's class, he is taller than 5 ft.

25. **Answer choice (a) is the correct answer.** Innate means something you are born with, which is closest in meaning to intrinsic.

26. **Answer choice (c) is the correct answer.** Imprisoned, confined, and captive all mean that you are not free. Liberated means freed, so it does not belong.

27. **Answer choice (c) is the correct answer.** Susceptible, vulnerable, and defenseless all mean at risk or not safe. Secure means safe, so it does not belong.

28. **Answer choice (a) is the correct answer.** Divulge means to reveal, which is the opposite of conceal.

29. **Answer choice (a) is the correct answer.** We know that all fish can breathe underwater. Therefore, since a piranha is a fish, it can breathe underwater.

30. **Answer choice (d) is the correct answer.** Resilient is the opposite of inflexible, and secular is the opposite of religious.

31. **Answer choice (c) is the correct answer.** Hysterical means extremely funny, which most nearly means hilarious.

32. **Answer choice (b) is the correct answer.** Sociable means friendly and outgoing, which is the opposite of aloof.

33. **Answer choice (c) is the correct answer.** Haught, snobbish, and conceited all mean full of yourself or arrogant. Disrespectful means not showing respect, so it does not belong.

34. **Answer choice (b) is the correct answer.** A tadpole grows into a frog, and a caterpillar grows into a butterfly.

35. **Answer choice (b) is the correct answer.** Haphazard means disorganized, which most nearly means random.

36. **Answer choice (d) is the correct answer.** A ruler, thermometer, and scale are all used to take a measurement. Since measurement is the general category, it does not belong.

37. **Answer choice (d) is the correct answer.** Laughter is the result of a joke, and grief is the result of loss.

38. **Answer choice (a) is the correct answer.** Point A is to the east, or right, of Point B. Point B is to the east, or right, of Point C, so Point C is to the west, or left, of Point B. Therefore, Point C is to the west, or left, of Point A. Draw the points so you can visually see their relationship.

39. **Answer choice (c) is the correct answer.** Repeal means to reverse, revoke, or to cancel something, normally a law or act. This is the opposite of enact.

40. **Answer choice (b) is the correct answer.** Stench, odor, and reek all mean smell. A flavor is the taste of something, so it does not belong.

41. **Answer choice (b) is the correct answer.** If you order the people from weakest to strongest you get Michael, Patrick, Chris, so Michael is not stronger than Chris.

42. **Answer choice (c) is the correct answer.** Daring, audacious, and adventurous all mean bold or fearless. Heedful means cautious, so it does not belong.

43. **Answer choice (a) is the correct answer.** A bike has a handlebar attached to it, and the handlebar is used to steer. A boat has a rudder attached to it, and the rudder is used to steer.

44. **Answer choice (d) is the correct answer.** Pester means to annoy, which most nearly means badger.

45. **Answer choice (c) is the correct answer.** Animals that only eat meat are called carnivores. Animals that only eat plants are called herbivores.

46. **Answer choice (a) is the correct answer.** To cease means to stop, which most nearly means halt.

47. **Answer choice (a) is the correct answer.** Unkempt, disheveled, and bedraggled all mean disordered or messy. Orderly means neat and tidy, so it does not belong.

48. **Answer choice (b) is the correct answer.** Restricted means bounded, which is the opposite of unbounded.

49. **Answer choice (c) is the correct answer.** While we know that all middle school students carry a backpack, we don't know that only middle school students carry a backpack. Therefore, it is uncertain if Helen carries a backpack.

50. **Answer choice (b) is the correct answer.** France, Canada, and Brazil are countries. Africa is a continent, so it does not belong.

51. **Answer choice (c) is the correct answer.** Strategic means planned, or deliberate, which most nearly means calculated.

52. **Answer choice (d) is the correct answer.** Till, plow, and cultivate are all things you do to a piece of land to get it ready to plant crops. Therefore, land does not belong.

53. **Answer choice (d) is the correct answer.** Taut means tight, which is the opposite of slack.

54. **Answer choice (c) is the correct answer.** While we know that Angel and Aidan are both louder than Liam, we do not know the relationship between the loudness of Angel and Aidan.

55. **Answer choice (d) is the correct answer.** Something that is extremely funny is hilarious. Something that is extremely stupid is asinine.

56. **Answer choice (b) is the correct answer.** Since Allen is the smartest student in his class, he is smarter than anyone else in his class. Therefore, if Leslie is in Allen's class, Allen is smarter than Leslie, so Leslie is not smarter than Allen.

57. **Answer choice (b) is the correct answer.** Keen means perceptive, acute, or highly developed, which most nearly means sharp.

58. **Answer choice (b) is the correct answer.** Destitute, indigent, and poor all mean lacking money and resources. Dirty means not clean, so it does not belong.

59. Answer choice (a) is the correct answer. If all students in the drama club perform in the school play, then if a student does not perform in the school play, he/she is not in the drama club. Therefore, since Carl does not perform in the school play, he is not in the drama club.

60. Answer choice (d) is the correct answer. Placate means to soothe, or calm, which is the opposite of agitate.

Quantitative Skills

61. Answer choice (b) is the correct answer. The rule for the sequence is *add 7*, so the next number is 679 + 7 = 686.

62. Answer choice (a) is the correct answer. Set up the equation $x^2 = (-16 + 20) + 5$ and solve for x: $x^2 = 4 + 5 \rightarrow x^2 = 9 \rightarrow x = 3$ or -3.

63. Answer choice (c) is the correct answer. (A) equals 5^8 because we multiply the exponents. (B) equals 5^8 because we add the exponents. (C) does NOT equal 5^8 because we cannot subtract the exponents when subtracting two exponential terms with the same base. Therefore, (A) = (B) ≠ (C)

64. Answer choice (d) is the correct answer. Write the sequence in standard numbers: 1, 3, 5, 7. The rule for the sequence is *add 2*, so the next number is 7 + 2 = 9 which is IX in roman numerals.

65. Answer choice (d) is the correct answer. Set up the equation $34 - x = 26 - 14$ and solve for x: $34 - x = 12 \rightarrow -x = -22 \rightarrow x = 22$.

66. Answer choice (c) is the correct answer. Since the triangle is a right triangle, the sum of the measures of angles A and C equals 90 which equals the measure of angle B.

67. Answer choice (c) is the correct answer. Set up the equation $x + 0.5x = 300$ and solve for x: $1.5x = 300 \rightarrow x = 200$.

68. Answer choice (a) is the correct answer. (A) equals $16 \cdot 10^5$, (B) equals $16 \cdot 10^5$, and (C) equals $32 \cdot 10^5$. Therefore, (A) is equal to (B) and less than (C).

69. Answer choice (d) is the correct answer. The rule for the sequence is *add 7, subtract 2, subtract 2*. Since we added 7 to get from 6 to 13, and then subtracted 2 to get from 13 to 11, we need to subtract 2 from 11 to find the next term: 11 – 2 = 9.

70. **Answer choice (a) is the correct answer.** The diameter of a circle is greater than any other line with endpoints on the circle. Since AB is a diameter, it is greater than CD.

71. **Answer choice (b) is the correct answer.** Set up the equation $x = \frac{1}{3} \bullet 24 - 6$ and solve for x: $x = 8 - 6 = 2$.

72. **Answer choice (d) is the correct answer.** The rule for the sequence is *divide by 3, multiply by 9*. To get from 9 to 81, we multiplied by 9, so to find the next number, divide 81 by 3: $81 \div 3 = 27$.

73. **Answer choice (a) is the correct answer.** The pattern is decreasing by 9, then 8, then 7, then 6, then 5. To find the missing number, subtract 8 from 85: $85 - 8 = 77$.

74. **Answer choice (a) is the correct answer.** Triangle BEC and rectangle ABCD share the same base and the same height. Since the area of a rectangle is $b \bullet h$, and the area of a triangle is $b \bullet h \div 2$, the area of triangle BEC is half of the area of rectangle ABCD.

75. **Answer choice (c) is the correct answer.** (A) equals 2, (B) equals 5, and (C) equals 3. Therefore, (A) + (C) equals (B): $2 + 3 = 5$.

76. **Answer choice (b) is the correct answer.** Set up the equation $40 - x = 4^2$ and solve for x: $40 - x = 16 \rightarrow -x = -24 \rightarrow x = 24$.

77. **Answer choice (a) is the correct answer.** Find (A): There are 7 red and green marbles and 14 total marbles, so the probability of choosing a red or green marble is 7 out of 14. Find (B): there are 7 blue marbles and 14 total marbles, so the probability of choosing a blue marble is 7 out of 14. Find (C): there are 7 marbles that are not blue and 14 total marbles, so the probability of choosing a marble that is not blue is 7 out of 14. Therefore, (A) = (B) = (C).

78. **Answer choice (a) is the correct answer.** The rule for the sequence is *subtract 6*. Therefore, the next number equals $74 - 6 = 68$.

79. **Answer choice (a) is the correct answer.** Find (A): when you multiply a square root by itself, the square roots cancel out and you are left with the number under the square root. Therefore, (A) equals 4. (B) equals 16. (C) does not equal a whole number because there is no nice square root of 8. Therefore, (A) ≠ (B) ≠ (C).

80. **Answer choice (b) is the correct answer.** Set up the equation $x - 14 = 72 \div 12$ and solve for x: $x - 14 = 6 \rightarrow x = 20$.

81. **Answer choice (c) is the correct answer.** The rule for the sequence is *add three-sevenths*. Therefore, the next number in the sequence is $\frac{10}{7} + \frac{3}{7} = \frac{13}{7}$.

82. **Answer choice (b) is the correct answer.** (A) equals $18 \div 6 = 3$, (B) equals $36 \div 120 = 0.3$, and (C) equals $24 \div 8 = 3$. Therefore, (A) equals (C) and is greater than (B).

83. **Answer choice (d) is the correct answer.** The rule for the sequence is *multiply by 5, subtract 7*. Since 8 was multiplied by 5 to get 40, to find the next number in the sequence, subtract 7 from 40: $40 - 7 = 33$.

84. **Answer choice (c) is the correct answer.** The numbers in the sequence are all cubes: $0^3 = 0$, $1^3 = 1$, $2^3 = 8$, and $3^3 = 27$. Therefore, the next number in the sequence is $4^3 = 64$.

85. **Answer choice (d) is the correct answer.** The pattern is *subtract 2, subtract 4, subtract 6*, so to find the next terms, subtract 8: $52 - 8 = 44$.

86. **Answer choice (b) is the correct answer.** The first letter in each term goes backwards one letter. Therefore, the first letter in the next term is B because it is one letter backwards from C. The second letter in each term goes forward three letters. Therefore, the second letter in the next term is X because the alphabet goes … U, V, W, X, so to get from U to X we go forward 3 letters.

87. **Answer choice (b) is the correct answer.** AF and ED are both space diagonals. The *space diagonal* is the line segment connecting opposite corners of any two opposite faces of the cube. Any space diagonals in the same cube are congruent.

88. **Answer choice (c) is the correct answer.** First find 10% of 800: 10% of $800 = 0.1 \cdot 800 = 80$. Find 20% of the result: 20% of $80 = 0.2 \cdot 80 = 16$.

89. **Answer choice (d) is the correct answer.** The rule for the sequence is *multiply by 2, multiply by 4*. To get from 2 to 8, we multiplied by 4. Therefore, to find the missing number, multiply 8 by 2: $8 \cdot 2 = 16$.

90. **Answer choice (a) is the correct answer.** Set up the equation $x = ⅛ \cdot 56 + 9$ and solve for x: $x = 7 + 9 \rightarrow x = 16$.

91. **Answer choice (d) is the correct answer.** (A) equals 0.7 • 0.4 = 0.28, (B) equals 0.4 • 70 = 28, and (C) equals 0.7 • 40 = 28. Therefore, (B) equals (C) and is greater than (A).

92. **Answer choice (b) is the correct answer.** The rule for the sequence is *add 4, subtract 6*. To get from 19 to 13, we subtracted 6, so to find the next number in the sequence, add 4 to 13: 13 + 4 = 17. Now subtract 6: 17 – 6 = 11. Now add 4: 11 + 4 = 15. Therefore, the next three numbers are 17, 11, 15.

93. **Answer choice (c) is the correct answer.** Set up the equation $\frac{1}{7}x = 10 \bullet 8 - 10$ and solve for x: $\frac{1}{7}x = 80 - 10 \rightarrow \frac{1}{7}x = 70 \rightarrow x = 490$.

94. **Answer choice (b) is the correct answer.** Find the slope between the points in (A): *slope* = $\frac{0-8}{8-0} = -1$. Find the slope of the line in (B) by rewriting the equation in the form $y = mx + b$, where m represents the slope and b represents the y intercept: $2y - 2x = 5 \rightarrow 2y = 2x + 5 \rightarrow y = x + 2.5$. Therefore, the slope in (B) equals 1. The equation in (C) is already written in the form $y = mx + b$, where m represents the slope and b represents the y intercept, so the slope is 1. Therefore, (B) and (C) are equal and greater than (A).

95. **Answer choice (c) is the correct answer.** 150% equals 1.5 and 3/2 equals 1.5. Therefore, (A), (B), and (C) all equal 1.5 • 30, so (A) = (B) = (C).

96. **Answer choice (a) is the correct answer.** The rule for the sequence is *subtract 2, subtract 3*. Since 3 was subtracted to get from 52 to 49, subtract 2 from 49 to get the next number in the sequence: 49 – 2 = 47.

97. **Answer choice (d) is the correct answer.** Three-fourths of (A) is shaded, three-fifths of (B) is shaded, and two-thirds of (C) is shaded. Therefore, (A) is shaded more than (C) which is shaded more than (B).

98. **Answer choice (d) is the correct answer.** Set up the equation $4x = \frac{4}{9} \bullet 72$ and solve for x: $4x = 32 \rightarrow x = 8$.

99. **Answer choice (c) is the correct answer.** (A) = 10, (B) = 6, (C) = 8, and (D) = 3. Therefore, (A) – (B) < (C) – (D) because 10 – 6 < 8 – 3.

100. **Answer choice (a) is the correct answer.** The pattern is *subtract 7, subtract 6, subtract 5, subtract 4*, so to find the next number, subtract 3: 58 – 3 = 55.

101. Answer choice (b) is the correct answer. Set up the equation $x + 15 = \sqrt{400}$ and solve for x: $x + 15 = 20 \rightarrow x = 5$.

102. Answer choice (a) is the correct answer. Set up the equation $5x = 7^2 - 4$ and solve for x: $5x = 49 - 4 \rightarrow 5x = 45 \rightarrow x = 9$.

103. Answer choice (d) is the correct answer. Find (A): the equation for the area of a circle is $A = \pi r^2$, so the radius of a circle with an area of 64π square units is 8 units. Find (B): the equation for the perimeter of a square is $P = 4s$, so the side length of a square with a perimeter of 64 units is 16 units. Find (C): the equation for the circumference of a circle is $C = 2\pi r$, so the radius of a circle with a circumference of 8π units is 4 units. Therefore, (C) is less than (A) which is less than (B).

104. Answer choice (c) is the correct answer. Use PEMDAS to find (A), (B), and (C). Find (A): $6 - 3(10 - 8) = 6 - 3(2) = 6 - 6 = 0$. Find (B): $2(11 - 8) = 2(3) = 6$. Find (C): $3 \times 4 \div 2 = 12 \div 2 = 6$. Therefore, (B) is equal to (C) and greater than (A).

105. Answer choice (c) is the correct answer. Set up the equation $\frac{4}{5}x = 0.3 \bullet 80$ and solve for x: $\frac{4}{5}x = 24 \rightarrow x = 30$.

106. Answer choice (d) is the correct answer. The rule for the number part of each term is *add 3*, so the number part of the next term is 12 + 3 = 15. From the first term to the second, the letter increases by 1. From the second term to the third, the letter increases by 2. From the third term to the fourth, the letter increases by 3. Therefore, to find the fifth term, increase the letter in the fourth term by four: G, H, I, J, **K** so the next term is 15K.

107. Answer choice (a) is the correct answer. Count the number of plus signs in each figure: (A) = 9, (B) = 6, and (C) = 9. Therefore, (A) – (B) = (C) – (B) because 9 – 6 = 9 – 6.

108. Answer choice (c) is the correct answer. The sum of the measures of the angles in any triangle is 180°. Therefore, A + B + C = 180. Subtract C from both sides to get A + B = 180 – C.

109. Answer choice (c) is the correct answer. The rule for the sequence is *divide by 5*. Therefore, the next number is 5 ÷ 5 = 1.

110. Answer choice (b) is the correct answer. Find (A) by adding the coefficients to get $6x^3$. Find (C) by multiplying 2 and 3 and multiplying x^2 and x by adding the exponents to get $6x^3$. Therefore, (A) = (C) ≠ (B).

111. Answer choice (c) is the correct answer. Set up the equation and solve for x: $x \bullet \frac{5}{6} \bullet 12 = \frac{2}{9} \bullet 90$: $x \bullet 10 = 20 \rightarrow x = 2$.

112. Answer choice (d) is the correct answer. The angles measuring B° and C° are equal because they are vertical angles. Because lines *l* and *m* are parallel, the angles measuring A° and B° are equal because they are corresponding angles. Therefore, A, B, and C are all equal.

Reading

113. Answer choice (c) is the correct answer. The last line of the first paragraph states, "They [tarsiers] are also on the brink of extinction." The passage then goes on to discuss the reasons for this. Therefore, the main purpose of the passage is to discuss that tarsiers are on the brink of extinction and explain why. This is closest to answer choice (c).

114. Answer choice (b) is the correct answer. The passage says that "tarsiers are incredibly territorial" and goes on to say that they will defend their land. Therefore, territorial means defensive.

115. Answer choice (d) is the correct answer. The passage mentions that tarsiers are shy and territorial in paragraph 2. In the first paragraph, the passage states that tarsiers are nocturnal. The passage does not mention that tarsiers are dangerous.

116. Answer choice (b) is the correct answer. In the second to last line of the second paragraph, the passage mentions that tarsiers become overstressed if they are touched too much.

117. Answer choice (d) is the correct answer. In the second paragraph, the passage says, "as small as they may be, they each demand around a hectare of land." Based on this, we can assume that a hectare of land is much bigger than a tarsier.

118. Answer choice (a) is the correct answer. In the last paragraph, the author states, "Several reserves have been built in the Philippines to help the endangered tarsier, but their efforts

may be too little, too late. This means it may be too late to prevent tarsiers from going extinct.

119. **Answer choice (d) is the correct answer.** While the passage states that the tarsiers are endangered and at risk of going extinct, it does not say that they are already extinct. It mentions they sleep during the day, their appearance helps provide protection from predators, and they are the world's smallest primates in the first paragraph.

120. **Answer choice (b) is the correct answer.** The passage says, "Only known to be endemic on a single island in the Philippines, there are now fewer than 800 tarsiers roaming the Philippine forests." Since the tarsiers are roaming the Philippine forests, they live there, so "be endemic" most nearly means exist.

121. **Answer choice (a) is the correct answer.** In the second paragraph, the passage states that the three reasons tarsiers are becoming extinct are because they are territorial, they can only give birth to one or two offspring at a time, and they are shy.

122. **Answer choice (c) is the correct answer.** The author uses sensory details in the first paragraph when describing the appearance of tarsiers. The author states facts about the tarsier throughout the passage. The author uses quantitative data when he/she says that there are fewer than 800 tarsiers in the Philippines. The author does not define terms.

123. **Answer choice (d) is the correct answer.** The passage provides information about the decline in the number of humanities bachelor's degrees and provides possible reasons for this decline. Therefore, the main purpose of the passage is to inform.

124. **Answer choice (c) is the correct answer.** The passage provides information about the decline in the number of humanities bachelor's degrees and provides possible reasons for this decline. Therefore, the passage is talking about possible reasons humanities are becoming less popular, so the title in choice (c) best fits the main idea.

125. **Answer choice (d) is the correct answer.** The second paragraph states, "Another trend scientists see is the societal focus on immediate post graduate salaries…" This means that our society's focus on the importance of post graduate salaries, or making money after college, is a possible reason for the decline in humanities majors.

126. **Answer choice (b) is the correct answer.** The second paragraph says that since general education courses like literature, history and philosophy (humanities courses) have been abolished, students are missing out on the holistic values taught in these courses.

127. **Answer choice (a) is the correct answer.** The last paragraph states that humanities courses talk about war, life, languages, and philosophy. The passage does not state that humanities courses teach engineering or math.

128. **Answer choice (a) is the correct answer.** The last paragraph states that learning about the topics taught in humanities courses "can have a significant influence on one's thoughts on life regarding himself, others, and the world." We can assume these are benefits of humanities courses.

129. **Answer choice (d) is the correct answer.** The passage says that since some general education courses have been abolished, "students are less likely to be acquainted with these fields, leaving them alien to the holistic values taught in these courses." Therefore, "acquainted with these fields" means taught or introduced to these fields.

130. **Answer choice (c) is the correct answer.** Intangible benefits are benefits that are hard to measure or quantify. The passage talks about how humanities classes offer students holistic values and influence one's thought on life which are intangible benefits.

131. **Answer choice (a) is the correct answer.** The first paragraph states that English degrees have declined by about 8% and history degrees have declined by about 12%, so English degrees have declined by about 4% less than history degrees.

132. **Answer choice (b) is the correct answer.** The passage says that since some general education courses have been abolished, "students are less likely to be acquainted with these fields, leaving them alien to the holistic values taught in these courses." If students are not acquainted with or introduced to certain fields, then they won't have the opportunity to learn the holistic values taught in those fields or courses. Therefore, "leaving them alien" means "leaving them unfamiliar with."

133. **Answer choice (a) is the correct answer.** The first paragraph states, "Depending on the region where they occur, hurricanes may also be referred to as typhoons or cyclones."

134. **Answer choice (c) is the correct answer.** The last sentence of the second paragraph states, "As this tropical wave moves westward, warm ocean air rises and causes an area of low pressure to form."

135. **Answer choice (b) is the correct answer.** For this question, it is difficult to use context clues to understand the definition of "exceeds." Therefore, you will need to know that the definition of "exceeds" is to get higher than.

136. **Answer choice (d) is the correct answer.** In the second and third paragraph, the passage says that a tropical wave turns into a tropical storm when the wind speed reaches 39 mph, and a tropical storm turns into a hurricane when the wind speed reaches 74 mph.

137. **Answer choice (d) is the correct answer.** In the third paragraph, the passage says that a tropical storm turns into a hurricane when the wind speed reaches 74 mph.

138. **Answer choice (b) is the correct answer.** The last line of the third paragraph states, "However, right outside of the eye is the eyewall – the most dangerous part of a hurricane."

139. **Answer choice (a) is the correct answer.** The passage is discussing information about hurricanes in a way that is easy to understand. Therefore, it would not be written by a nuclear physicist or environmental engineer because the writing is too simple. It is not written by a famous fictional author because fiction is not true. Therefore, we are left with the science editor of a magazine.

140. **Answer choice (c) is the correct answer.** The passage states that the eye of the hurricane is intriguing because it is calm. This is interesting because the rest of a hurricane is not calm, and a hurricane is very destructive. Therefore, intriguing most nearly means interesting.

141. **Answer choice (b) is the correct answer.** The first paragraph states, "Depending on the region where they occur, hurricanes may also be referred to as typhoons or cyclones."

142. **Answer choice (c) is the correct answer.** The passage describes the process of how a hurricane forms, providing information about each step in the formation process. Therefore, the title "The Formation of Hurricanes" best fits the passage.

143. **Answer choice (a) is the correct answer.** Personification is when you give a personal or human characteristic to something non-human. In the line, "the stage floor would open up and swallow her whole," the personal characteristic of swallowing her whole is given to the stage floor.

144. **Answer choice (d) is the correct answer.** In the first paragraph, Natalie describes Rebecca as flawless, immaculately balanced, and perfect. She says that she will never be able to beat Rebecca. While she is saying positive things about Rebecca, it isn't in an admiring way, so answer choice (a) is incorrect. Instead, it is in a jealous way: Natalie wishes she could be as good as Rebecca.

145. **Answer choice (a) is the correct answer.** The end of the last paragraph says, “She turned back to her parents. Now she could see their faces, beaming with pride.”

146. **Answer choice (c) is the correct answer.** The story is about Natalie who is backstage in an auditorium waiting to perform.

147. **Answer choice (c) is the correct answer.** A simile compares two things using the words “like” or “as.” The phrase “the tutu her mom had made for her suddenly felt like a thousand-pound weight” compares the tutu to a weight using the word “like.”

148. **Answer choice (b) is the correct answer.** The first paragraph states that Rebecca’s house has a dance studio.

149. **Answer choice (a) is the correct answer.** The passage uses words such as “she”, “her”, “they”, and “their” which indicates third person.

150. **Answer choice (a) is the correct answer.** The second paragraph states that Natalie’s mind “descended into waves of panic” and talks about “the butterflies in her stomach.” Therefore, the paragraph is talking about how nervous Natalie was.

151. **Answer choice (b) is the correct answer.** In the beginning of the passages, Natalie is extremely nervous. Her mind “descended into waves of panic” and she had “butterflies in her stomach.” She was so nervous she thought about leaving the performance. The last line of the passages states, “Maybe it wouldn’t be so bad if she stayed.” This is referring to Natalie realizing her performance might not be that bad. Therefore, her attitude shifts from scared to get on stage to slightly optimistic about her performance.

152. **Answer choice (d) is the correct answer.** Narrative writing is writing that tells a story. This passage was the story about Natalie’s dance recital.

153. **Answer choice (b) is the correct answer.** To make an incision is to make a cut. For example, a surgeon will make an incision during surgery.

154. **Answer choice (a) is the correct answer.** A harmonious relationship is a friendly, or agreeable, relationship.

155. **Answer choice (c) is the correct answer.** A traditional garb is a traditional piece of clothing, or garment.

156. **Answer choice (a) is the correct answer.** A tangible reward is a tactile, physical, or palpable reward.

157. **Answer choice (d) is the correct answer.** A superficial wound is a wound that is not deep, or a shallow wound.

158. **Answer choice (c) is the correct answer.** An apathetic response is an unconcerned, or indifferent, response.

159. **Answer choice (b) is the correct answer.** To pardon a criminal means to exonerate, or free of blame. This is the same as to absolve a criminal.

160. **Answer choice (d) is the correct answer.** A baseless allegation is a claim that is made without evidence or facts. This is the same as an unfounded allegation.

161. **Answer choice (a) is the correct answer.** An abridged book is a shortened, or abbreviated, book.

162. **Answer choice (c) is the correct answer.** A stationary object is an object that isn't moving, which is the same as a fixed object.

163. **Answer choice (a) is the correct answer.** An elevated self-esteem is a high, or inflated, self-esteem.

164. **Answer choice (b) is the correct answer.** A charismatic speaker is captivating, compelling or charming.

165. **Answer choice (c) is the correct answer.** A garrulous host is a chatty, or talkative, host.

166. **Answer choice (d) is the correct answer.** A sharp retort is a sharp reply, or come back.

167. **Answer choice (b) is the correct answer.** A deceptive criminal is a deceitful, or dishonest, criminal.

168. **Answer choice (a) is the correct answer.** To amend a law means to change, or revise it.

169. **Answer choice (c) is the correct answer.** A strong stench is a strong smell, or odor.

170. **Answer choice (d) is the correct answer.** Esoteric writing is advanced, hard to understand, or complex.

171. **Answer choice (b) is the correct answer.** To endorse a candidate means to back a candidate, or to support a candidate.

172. **Answer choice (c) is the correct answer.** A derogatory term is a critical, disrespectful, or offensive term.

173. **Answer choice (d) is the correct answer.** A meager amount is a small, or insufficient, amount.

174. **Answer choice (a) is the correct answer.** An ulterior motive is undisclosed, hidden, or underlying motive.

Mathematics

175. **Answer choice (a) is the correct answer.** There are 3 feet in 1 yard, so there are 12 feet in 4 yards. There are 12 inches in 1 foot, so 24 inches equals 2 feet. Add 12 ft + 3 ft + 2 ft to get 17 ft.

176. **Answer choice (b) is the correct answer.** Using s to represents the amount of money Sophie has and c to represent the amount of money Charles has, set up the equation $s = 18 + \frac{1}{3} \cdot c$. Since Sophie has \$48, plug in 48 for s and solve for c: $48 = 18 + \frac{1}{3} \cdot c \rightarrow 30 = \frac{1}{3} \cdot c \rightarrow c = \$90$.

177. **Answer choice (a) is the correct answer.** Parallel lines are lines that never touch and have the same slope. In figure (a), the top and bottom lines are parallel.

178. **Answer choice (c) is the correct answer.** From 11:30 to 1:30, 2 hours have passed. From 1:30 to 2:15, 45 minutes have passed. Therefore, from 11:30 to 2:15, 2 hours and 45 minutes have passed.

179. **Answer choice (a) is the correct answer.** When adding two numbers, stack the numbers by lining up the digits and add down. Therefore, 27,987 + 4,396 = 32,383.

180. **Answer choice (d) is the correct answer.** The height to shadow ratio of the child must equal the height to shadow ratio of the building. Therefore, we can set up and solve the following proportion using x as the building's height: $\frac{4}{5} = \frac{20}{x} \rightarrow 4x = 100 \rightarrow x = 25$ ft.

181. **Answer choice (b) is the correct answer.** A triangular pyramid is a 3d figure with a triangular base and three triangular faces that meet at a point.

182. **Answer choice (b) is the correct answer.** There are 1000 liters in 1 kiloliter, so to change 50 liters to kiloliters, divide by 1000: $50 \div 1000 = 0.05$.

183. **Answer choice (b) is the correct answer.** An equilateral triangle has lines of symmetry connecting each vertex to the midpoint of the opposite base.

184. **Answer choice (d) is the correct answer.** The combined lengths of the two vertical segments on the left is $6 + 1 = 7$. This must equal the combined lengths of the two vertical segments on the right. The combined lengths of the two horizontal segments on the top is $3 + 6 = 9$. This must equal the combined lengths of the two horizontal segments on the bottom. Therefore, the perimeter is $7 + 7 + 9 + 9 = 32$.

185. **Answer choice (b) is the correct answer.** Plug in –15 for C in the equation and solve for F: $F = (9/5)\bullet(-15) + 32 \rightarrow F = -27 + 32 \rightarrow F = 5°$.

186. **Answer choice (a) is the correct answer.** There are 8 gray squares and 6 black squares, so the ratio of the gray area to the black area is 8:6 which equals 4:3.

187. **Answer choice (b) is the correct answer.** The mode of a data set is the number that appears the most. 12 appears three times which is more than any of the other numbers.

188. **Answer choice (b) is the correct answer.** The angle labeled 30° and the angle labeled $b°$ are alternate interior angles. Since lines l and m are parallel, these two angles are congruent, so $b = 30$.

189. **Answer choice (c) is the correct answer.** When a point is reflected over the x-axis, the x-coordinate stays the same and the y-coordinate changes signs. Therefore, when (5, –7) is flipped over the x-axis it becomes (5, 7).

190. **Answer choice (c) is the correct answer.** 12 out of 60 adults don't recycle which simplifies to 1 out of 5. Divide 1 by 5 to get 0.2, which equals 20%.

191. **Answer choice (d) is the correct answer.** If two angles are supplements, they add up to 180°. Therefore, the supplement of 20° is 160° because $20° + 160° = 180°$.

192. Answer choice (a) is the correct answer. The equation for the circumference of a circle is $C = 2\pi r$. To find the radius of a circle with a circumference of 16π meters, plug in 16π for C in the equation and solve for r: $16\pi = 2\pi r \rightarrow r = 8$ meters.

193. Answer choice (c) is the correct answer. Multiples of a number can be divided by the number evenly without a remainder. 60 is the smallest number that can be divided by 6, 15, and 12 evenly, so 60 is the least common multiple of 6, 15, and 12.

194. Answer choice (d) is the correct answer. The median of a set of data is the middle number when the numbers are lined up from least to greatest. The numbers lined up from least to greatest are 29, 32, 45, 50, 81, 96. Since this set of numbers has two middle numbers, 45 and 50, we need to find the middle or average of those two numbers. Find the average by adding the two numbers and dividing by 2: $(45 + 50) \div 2 = 95 \div 2 = 47.5$.

195. Answer choice (b) is the correct answer. A quarter is worth 25 cents or 0.25 dollars, so 24 quarters are worth $0.25 \bullet 24 = \$6$. A dime is worth 10 cents or 0.1 dollars, so 30 dimes are worth $0.1 \bullet 30 = \$3$. A nickel is worth 5 cents or 0.05 dollars, so 10 nickels are with $0.05 \bullet 10 = \$0.50$. $\$6 + \$3 + \$0.50 = \$9.50$.

196. Answer choice (a) is the correct answer. Set up and solve the following proportion using x to represent the number of boys in the class: $\frac{3}{7} = \frac{x}{21} \rightarrow 7x = 63 \rightarrow x = 9$ boys.

197. Answer choice (a) is the correct answer. When multiplying decimals, first multiply the two numbers without decimals: $64 \bullet 32 = 2048$. Now count the number of digits after the decimal points in the original numbers: there are 2 digits after the decimal point in 0.64, and there is 1 digit after the decimal point in 3.2, so there are a total of 3 digits after the decimal points. Therefore, we want 3 digits after the decimal point in our answer, so we get 2.048.

198. Answer choice (a) is the correct answer. Add the numbers underneath the square root first to get the square root of 169. The square root of 169 equals 13 because $13^2 = 169$.

199. Answer choice (b) is the correct answer. 8 adults make $40,000 per year and 2 adults make $50,000. 8 is 6 more than 2.

200. Answer choice (d) is the correct answer. -7^2 is the same as $(-1) \bullet 7^2$ which equals $(-1) \bullet 49 = -49$. Remember that the negative is not squared because it is not in parentheses. If the problem were written like $(-7)^2$, then the answer would be 49.

201. Answer choice (c) is the correct answer. To find the prime factorization, find the prime numbers that multiply to 24 by making a factor tree. $3 \cdot 2 \cdot 2 \cdot 2 = 24$, and 3 and 2 are prime, so $3 \cdot 2^3$ is the prime factorization of 24.

202. Answer choice (b) is the correct answer. The slope of the line is 3 and the y-intercept is 3. Use slope intercept form, $y = mx + b$, where m represents the slope and b represents the y-intercept. Plug in 3 for m and 3 for b to get $y = 3x + 3$.

203. Answer choice (c) is the correct answer. The base of a cube is a square, so the perimeter of the base equals $4s$, where s is the side length of the cube. Therefore, if the perimeter of the base is 36 in, then the side length is 9 in. The surface area of a cube equals $6s^2$, so the surface area of a cube with a side length of 9 in $= 6 \cdot 9^2 = 6 \cdot 81 = 486$ in^2.

204. Answer choice (b) is the correct answer. The equation for the area of a circle is $A = \pi r^2$. Find the radius of the circle by plugging in 100π for A and solving for r: $100\pi = \pi r^2 \rightarrow 100 = r^2 \rightarrow r = 10$. The diameter is twice the radius, so the diameter equals $10 \cdot 2 = 20$ inches.

205. Answer choice (a) is the correct answer. Divide 5,226 by 13 using long division to get 402. For a step by step solution, use the following online calculator: Long Division Calculator

206. Answer choice (a) is the correct answer. First find the discounted price by reducing \$500 by 20%: \$500 – 20% of \$500 = 500 – 0.2 • 500 = 500 – 100 = \$400. Now find the total cost by adding 10% tax to the discounted price: \$400 + 10% of \$400 = 400 + 0.1 • 400 = 400 + 40 = \$440.

207. Answer choice (c) is the correct answer. First change each fraction into a mixed number to get $\frac{12}{5} \div \frac{8}{3}$. Now divide by flipping the second fraction and multiplying: $\frac{12}{5} \div \frac{8}{3} = \frac{12}{5} \cdot \frac{3}{8} = \frac{36}{40} = \frac{9}{10}$.

208. Answer choice (c) is the correct answer. Find the number of pieces of string Dwight has by dividing 15.6 by 0.4: $15.6 \div 0.4 = 156 \div 4 = 39$ pieces.

209. Answer choice (b) is the correct answer. The 9 is in the hundredths place, and the number to the right of it is greater than 5, so we want to round up. To round a 9 up, we change the 9 to a zero and round the number to the left of it up, so we get 563.90.

210. Answer choice (c) is the correct answer. Use PEMDAS: $24 \div (-2) = -12$ and $-12 \bullet (-6) = 72$.

211. Answer choice (d) is the correct answer. Because the three angles form a straight line, they add up to 180°. Therefore, we can set up and solve the equation $x + x + 110 = 180 \rightarrow 2x + 110 = 180 \rightarrow 2x = 70 \rightarrow x = 35$.

212. Answer choice (b) is the correct answer. A cylinder is a 3d figure with two bases that are circles connected by a curved surface.

213. Answer choice (c) is the correct answer. The average of a set of numbers equals the sum of the numbers divided by the number of terms. Therefore, we can set up and solve the equation $60 = s \div 3$ where s represents the sum of the three boys' ages. Solve the equation by multiplying both sides by 3 to get $s = 180$ inches.

214. Answer choice (b) is the correct answer. Plug in 8 for x and solve for y: $y = \frac{3}{4}(8) - 5 \rightarrow y = 6 - 5 \rightarrow y = 1$.

215. Answer choice (a) is the correct answer. The negative 2 exponent tells us to move the decimal point 2 times to the left, so $5.47 \times 10^{-2} = 0.0547$.

216. Answer choice (d) is the correct answer. An octagon has 8 sides, a hexagon has 6 sides, and a pentagon has 5 sides.

217. Answer choice (a) is the correct answer. Set up and solve the equation $6.78 + x = 10$ using x to represent the unknown number: $6.78 + x = 10 \rightarrow x = 3.22$. Find the difference between 3.22 and 4.3: $4.3 - 3.22 = 1.08$.

218. Answer choice (c) is the correct answer. The equation for the circumference of a circle is $C = 2\pi r$, so find the circumference by plugging in 5 yards for r: $C = 2\pi \bullet 5 = 10\pi$ yards.

219. Answer choice (b) is the correct answer. There are 16 ounces in a pound, so 1 pound 4 ounces equals 20 ounces. Multiply 20 by \$1.50: $20 \bullet 1.5 = \$30$.

220. Answer choice (b) is the correct answer. If you plug the point (–2, 4) into the given inequality, it will be true. Plug in –2 for x and 4 for y: $4 < -2(-2) + 1 \rightarrow 4 < 4 + 1 \rightarrow 4 < 5$.

221. Answer choice (c) is the correct answer. First add $3b$ to both sides of the equation to get $5b + 25 = 15$. Then subtract 25 from both sides to get $5b = -10$. Finally, divide both sides by 5 to get $b = -2$.

222. Answer choice (c) is the correct answer. The sum of the two acute angles in a right triangle is 90°. Therefore, we can set up the equation $2x + 7x = 90$, where $2x$ represents the measure of the smaller acute angle and $7x$ represents the measure of the larger acute angle. Solve the equation: $2x + 7x = 90 \rightarrow 9x = 90 \rightarrow x = 10$. Therefore, the smaller angle equals $2 \bullet 10 = 20°$.

223. Answer choice (a) is the correct answer. First find the total value of the items the salesman sold by multiplying \$150 by 8: \$150 • 8 = \$1200. Since the salesman earns 8% commission on every item he sells, he earns 8% of \$1200: 8% of \$1200 = 0.08 • 1200 = \$96.

224. Answer choice (d) is the correct answer. Subtract 9 from both sides of the inequality to get $x \geq 5$.

225. Answer choice (b) is the correct answer. The union of two sets of numbers includes every number that shows up in either set. Since the union includes a 7, but set A doesn't include a 7, Set B must include 7. This eliminates choices (a) and (d). Since the union does not include a 14, neither set can include 14, so this eliminates choice (c). We are left with answer choice (b).

226. Answer choice (d) is the correct answer. To find the reciprocal of a number, divide 1 by the number. This is the same as flipping the fraction upside down.

227. Answer choice (d) is the correct answer. If Justin can write three-sevenths of his essay in 75 minutes, then he can write one-seventh in 25 minutes (75 ÷ 3 = 25). If he can write one-seventh of his essay in 25 minutes, multiply 25 minutes by 7 to find the time it takes to write the whole essay: 25 • 7 = 175 minutes.

228. Answer choice (b) is the correct answer. If we divide $\frac{3}{4}$ by some number of children, we get $\frac{3}{20}$. Therefore, we can set up the equation $\frac{3}{4} \div x = \frac{3}{20}$, where x represents the number of children. This equation is in the same fact family as $\frac{3}{4} \div \frac{3}{20} = x$, so $x = \frac{3}{4} \bullet \frac{20}{3} = 5$ children.

229. Answer choice (c) is the correct answer. To simplify $3a(2bc)$ multiply the 3 and 2 together to get $6abc$.

230. Answer choice (a) is the correct answer. Use the equation $d = rt$ to find the speed or rate. Plug in 840 miles for the distance and 7 hours for the time and solve for r: $840 = r \bullet 7 \rightarrow r = 120$ mph.

231. Answer choice (d) is the correct answer. The probability of an event equals the ratio of the number of favorable outcomes to the number of total outcomes. There is 1 way to roll a 3 on a standard die, so there is 1 favorable outcome. There are 6 ways to roll a standard die, so there are 6 total outcomes. Therefore, the probability of rolling a 3 equals ⅙.

232. Answer choice (c) is the correct answer. First, find the total number of cupcakes Michaela needs to bake. She has baked 40 cupcakes which equals 80% of the total cupcakes. Therefore, we can set up the equation $40 = 0.8 \bullet t$ where t represents the total number of cupcakes. Solve the equation by dividing both sides by 0.8 to get $t = 50$. Subtract the 40 cupcakes Michaela has already baked from the 50 total cupcakes: $50 – 40 = 10$ more cupcakes.

233. Answer choice (b) is the correct answer. Cross multiply to solve: $13(12) = 16t \rightarrow 156 = 16t \rightarrow t = 9.75$.

234. Answer choice (b) is the correct answer. If the probability of hitting a black section is ⅗, then ⅗ of the sections are black. Find the number of black sections: ⅗ of 15 = ⅗ • 15 = 9 black sections. Find the number of sections that are *not* black by subtracting the number of black sections from the total sections: 15 – 9 = 6 sections that are not black.

235. Answer choice (a) is the correct answer. The absolute value of a number is the distance from the number to 0; the absolute value of any number except 0 is positive. Therefore, if $|x – 10| = 3$, then $x – 10$ can equal 3 or –3. If $x – 10 = 3$, then $x = 13$. If $x – 10 = –3$, then $x = 7$. Therefore, x can equal 13 or 7.

236. Answer choice (c) is the correct answer. The equation for the area of a rectangle is $A = l \bullet w$. Find the width of the rectangle by plugging in 36 for the area and 12 for the length: $36 = 12w \rightarrow w = 3$ cm. Find the perimeter of the rectangle by adding up all four sides: 3 + 3 + 12 + 12 = 30 cm.

237. Answer choice (d) is the correct answer. If Lisa is 3 years younger than David, then David is 3 years older than Lisa. Therefore, David's age = 18 + 3 = 21 years. Find David's age 5 years ago by subtracting 5 from his current age: 21 – 5 = 16 years.

238. Answer choice (b) is the correct answer. The vertex of an angle is the common endpoint of the two rays that form the angle..

Language

239. Answer choice (c) is the correct answer. There needs to be an apostrophe in the word "won't" because it is a contraction meaning "will not."

240. Answer choice (c) is the correct answer. "Saw" should be "seen" because seen is the past participle of "see", and past participles follow words such as "has", "have", and "had."

241. Answer choice (a) is the correct answer. "More" should be "most" because "more" is used to compare two people, and "most" is used to compare three or more people or a group of people.

242. Answer choice (c) is the correct answer. The sentence is not a question, so there should be a period instead of a question mark at the end of the sentence.

243. Answer choice (b) is the correct answer. The semicolon should be replaced with a comma or the "but" needs to be deleted. A semicolon joins two complete sentences, and the phrase, "but this year she hates it," is not a complete sentence.

244. Answer choice (d) is the correct answer. There are no mistakes in answer choices (a), (b), and (c).

245. Answer choice (b) is the correct answer. Do not put quotes around a phrase that follows the word "that" because the phrase is not a direct quote.

246. Answer choice (a) is the correct answer. A comma is needed after "Frank" because a comma is needed after a direct address.

247. Answer choice (c) is the correct answer. There needs to be a period at the end of the sentence.

248. Answer choice (b) is the correct answer. You cannot use a comma and a dash around parenthetical phrases. You either need to use two commas or two dashes.

249. Answer choice (d) is the correct answer. There are no mistakes in answer choices (a), (b), and (c).

250. **Answer choice (c) is the correct answer.** "Memorial Day" needs to be capitalized because holidays are always capitalized.

251. **Answer choice (a) is the correct answer.** "Everyone" is singular so "their" should be changed to "his/her."

252. **Answer choice (b) is the correct answer.** "Her" should be changed to "she" because it is being used as a subject. "She" is a subject pronoun and "her" is an object pronoun.

253. **Answer choice (a) is the correct answer.** "Careful" should be changed to "carefully" because it is modifying the verb "listen." "Carefully" is an adverb, and adverbs are used to modify verbs.

254. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

255. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

256. **Answer choice (a) is the correct answer.** The verbs in the sentence need to be in the same form. Therefore, it should read, "She loves sitting by the lake and reading her book," or "She loves to sit by the lake and read her book."

257. **Answer choice (c) is the correct answer.** "You're" should be replaced with "your" because "your" is used to show possession. "You're" is a contraction meaning "you are."

258. **Answer choice (c) is the correct answer.** There needs to be a comma after "class" because the part of the sentence before the "but" is an independent clause, and the part of the sentence after the "but" is an independent clause. When joining two independent clauses with a coordinating conjunction, a comma is needed before the conjunction.

259. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

260. **Answer choice (b) is the correct answer.** "Everyone" is singular, so "were" should be replaced with "was."

261. **Answer choice (c) is the correct answer.** "Were" needs to be replaced with "we're" which is a contraction meaning "we are." "Were" is the past tense of the verb "are."

262. **Answer choice (a) is the correct answer.** "There" needs to be replaced with "their" which shows possession. "There" means in, at or to that place or position.

263. **Answer choice (a) is the correct answer.** "Central Park" needs to be capitalized because it is a proper noun.

264. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

265. **Answer choice (a) is the correct answer.** "Would of" is grammatically incorrect and needs to be replaced with "would have."

266. **Answer choice (b) is the correct answer.** Parentheses are needed around the phrase "a girl who moved here from New York" because it is a non-essential, parenthetical phrase.

267. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

268. **Answer choice (b) is the correct answer.** "Lie" should be "lay" because "lay" is used as the word "put" and the sentence is saying, "Please put the book on the table …"

269. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

270. **Answer choice (b) is the correct answer.** "Self-concious" is spelled incorrectly and should be spelled "self-conscious."

271. **Answer choice (c) is the correct answer.** "Neice" is spelled incorrectly and should be spelled "niece."

272. **Answer choice (a) is the correct answer.** "Mispelled" is spelled incorrectly and should be spelled "misspelled."

273. **Answer choice (a) is the correct answer.** "Comitted" is spelled incorrectly and should be spelled "committed."

274. **Answer choice (c) is the correct answer.** "Cheif" is spelled incorrectly and should be spelled "chief."

275. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

276. **Answer choice (b) is the correct answer.** "Cemetary" is spelled incorrectly and should be spelled "cemetery."

277. **Answer choice (a) is the correct answer.** "Liesure" is spelled incorrectly and should be spelled "leisure."

278. **Answer choice (b) is the correct answer.** "Exageration" is spelled incorrectly and should be spelled "exaggeration."

279. **Answer choice (b) is the correct answer.** The second sentence provides an additional, negative effect of smoking. Therefore, the word "moreover" best fits in the blank because it means "in addition."

280. **Answer choice (d) is the correct answer.** None of the topics in the answer choices contain enough substance to take up a 5 page essay. Each of the topics listed would require a page or less to talk about.

281. **Answer choice (a) is the correct answer.** Answer choices (b), (c), and (d) are all saying that the father was seven years old instead of saying I was seven years old.

282. **Answer choice (b) is the correct answer.** The second sentence is a result of the first. Since my mother likes baking, she greets me with fresh baked goods when I come home from school. Therefore, the phrase "as a result" fits best in the blank.

283. **Answer choice (d) is the correct answer.** The paragraph opens up by talking about how children are excited for Christmas because of the gifts they receive. It then goes on to say that Christmas is also an opportunity to give to those less fortunate and spend time with loved ones. Therefore, the main point of the passage is that Christmas is not all about receiving gifts, so answer choice (d) is the best topic sentence.

284. **Answer choice (c) is the correct answer.** The second sentence is surprising given the first sentence. Kimberly received over thirty gifts, so it is surprising that she still complained about not getting the dolls she asked for. The second sentence contrasts the first sentence, so the word in the blank should be something like "even still" or "however" which have the same meaning as "nevertheless."

285. **Answer choice (a) is the correct answer.** The topic "Controversial Casting in Movies and Television" would discuss casting decisions that caused controversy, debates, or disagreements. Answer choice (a) fits in this topic because if fans are angry about a casting decision, then this casting decision caused controversy.

286. **Answer choice (d) is the correct answer.** Answer choice (a) and (b) are incorrect because they are saying that the curtain was performing in the school play. Answer choice (c) is incorrect because it says that the students fell onto the stage.

287. **Answer choice (d) is the correct answer.** Answer choice (a) is incorrect because it is awkward. Answer choice (b) is incorrect because it is future tense instead of present test. Answer choice (c) is incorrect because it is redundant: it repeats the phrase "I visit."

288. **Answer choice (a) is the correct answer.** The topic "Best Exercise for Longevity" would discuss certain exercises that help increase your lifespan (longevity). Therefore, answer choice (a) fits under this topic because it claims that an exercise, walking, can increase your lifespan.

289. **Answer choice (b) is the correct answer.** Answer choice (a) is incorrect because it is a fragment. Answer choice (c) is incorrect because the phrase "staying home from school is what he did" is awkward. Answer choice (d) is incorrect because the phrase "because of it" is redundant.

290. **Answer choice (d) is the correct answer.** The main point of the paragraph is to argue that elementary math should be taught by people who deeply understand math. Therefore, answer choice (d) is the best topic sentence because it introduces the main point of the paragraph.

291. **Answer choice (c) is the correct answer.** The topic "Contributions of Martin Luther King Jr." would discuss things that Martin Luther King Jr. gave to or did for society. Answer choice (c) fits under this topic because Martin Luther King's protests and campaigns contributed to getting equal voting rights.

292. **Answer choice (b) is the correct answer.** Answer choices (a) and (c) are incorrect because they are awkwardly worded. Answer choice (d) is incorrect because it is a fragment.

293. **Answer choice (c) is the correct answer.** Answer choices (a) and (d) are incorrect because they are saying that the squirrel was looking around the yard when they should say that I was looking around the yard. Answer choice (b) is incorrect because "jumping" should be "jumped."

294. **Answer choice (c) is the correct answer.** The main point of the paragraph is to discuss how bees are more than frightening insects: they contribute to our ecosystem. Sentence 3 is irrelevant to this main idea because it does not discuss how bees contribute to our ecosystem.

295. **Answer choice (a) is the correct answer.** The paragraph discusses the downsides of cats and starts off by saying, "One of the downsides …" Therefore, the added sentence should go in the beginning of the paragraph, before sentence 1, because it introduces the idea that there are downsides to owning cats.

296. **Answer choice (d) is the correct answer.** While the paragraph mentions psychologists in sentence 3, the main point of the passage is to discuss negativity bias. The added sentence does not add information about negativity bias, so it does not fit in the paragraph.

297. **Answer choice (a) is the correct answer.** The main point of the paragraph is to discuss the differences and similarities of Batman and Superman. The first sentence does not talk about the similarities or differences of Batman and Superman, so it does not belong in the paragraph.

298. **Answer choice (b) is the correct answer.** Sentence two mentions the word "ambidextrous". Since the added sentence defines the word "ambidextrous," it makes sense to place it after sentence 2.

Practice Test 3

Verbal Skills

1. **Answer choice (d) is the correct answer.** A metaphor, simile, and personification are all types of figures of speech which are used in literature. Since literature is not a figure of speech, it does not belong.

2. **Answer choice (a) is the correct answer.** We know that if Taryn wins, she receives $100. From this, we know it's true that if Taryn does not receive $100, she did not win the competition.

3. **Answer choice (b) is the correct answer.** A misdemeanor, felony, and infraction are all different levels of crimes. Since jail is not a level of crime, it does not belong.

4. **Answer choice (b) is the correct answer.** Consent means to give permission, which most nearly means allow.

5. **Answer choice (c) is the correct answer.** An apple grows on a tree, and a tomato grows on a vine.

6. **Answer choice (b) is the correct answer.** Educated, knowledgeable, and learned are all used to describe someone who knows things or has knowledge. Ignorant means lacking knowledge or awareness, so it does not belong.

7. **Answer choice (d) is the correct answer.** Sluggish means slow-moving or inactive, which is the opposite of energetic.

8. **Answer choice (b) is the correct answer.** Timothy has a bigger shoe size than Greg, and Greg has a bigger shoe size than Frank. Therefore, if we order those three people from smallest shoe size to largest shoe size, we get Frank, Greg, Timothy. Therefore, Frank does not have a bigger shoe size than Timothy.

9. **Answer choice (c) is the correct answer.** The outer layer of a banana is called a peel, and the outer layer of corn is called a husk.

10. **Answer choice (b) is the correct answer.** Line A is shorter than Line C, and Line C is shorter than Line D. Therefore, if we order those three lines from shortest to longest, we get A, C, D, so line D is not shorter than line A.

11. **Answer choice (a) is the correct answer.** Ponder means to think about something, or consider it, which most nearly means contemplate.

12. **Answer choice (b) is the correct answer.** Alert means vigilant or aware of what's going on. This is the opposite of inattentive.

13. **Answer choice (d) is the correct answer.** Dumbfounded, flabbergasted, and confounded all mean very surprised. Oppressed means mistreated, abused, or persecuted, so it does not belong.

14. **Answer choice (b) is the correct answer.** An emerald, sapphire, and diamond are all types of gems. Since gem is the general category, it does not belong.

15. **Answer choice (c) is the correct answer.** Explicit means clear, which is the opposite of ambiguous.

16. **Answer choice (d) is the correct answer.** Hear, touch, and smell are each one of the five senses. Envision is not one of the five senses, so it does not belong.

17. **Answer choice (d) is the correct answer.** Appease is the opposite of aggravate, and unintentional is the opposite of deliberate.

18. **Answer choice (c) is the correct answer.** We know how Valley River and Cascade River are both longer than Raging River, and we know that Cascade River is shorter than Winding River. However, we do not have enough information to determine the relationship between Winding River and Valley River because we do not know the relationship between Valley River and Cascade River.

19. **Answer choice (d) is the correct answer.** Adept means skilled, which is the opposite of incapable.

20. **Answer choice (a) is the correct answer.** Frail, weak, and feeble all mean lacking strength. While old people sometimes lack strength, old does not mean lacking strength, so it does not belong.

21. **Answer choice (c) is the correct answer.** Obedient means willing to comply or listen, which most nearly means submissive.

22. **Answer choice (b) is the correct answer.** A rake is used on leaves, and a comb is used on hair.

23. **Answer choice (a) is the correct answer.** If we order the items from least expensive to most expensive, we get soup, burrito, sandwich, salad, so a salad is more expensive than soup.

24. **Answer choice (a) is the correct answer.** Instigate means to incite or encourage someone to do something, usually bad, which is closest in meaning to provoke.

25. **Answer choice (d) is the correct answer.** Restricted, barred, and inhibited all mean held back or confined. Unbounded means free and unrestricted, so it does not belong.

26. **Answer choice (d) is the correct answer.** Weighty means very significant or important, which most nearly means serious.

27. **Answer choice (a) is the correct answer.** A blacksmith makes and repairs metal, and a seamstress makes and repairs clothing.

28. **Answer choice (d) is the correct answer.** Authority, power, and clout all mean influence or control. Aspiration means a goal or desire, so it does not belong.

29. **Answer choice (b) is the correct answer.** The first sentence tells us that all dogs like playing fetch. Therefore, since Rufus is a dog, he likes playing fetch.

30. **Answer choice (a) is the correct answer.** Unavailable means not able to be used or obtained which is the opposite of accessible.

31. **Answer choice (c) is the correct answer.** A basketball, marble, and globe are all in the shape of a sphere. Since sphere is the general category, it does not belong.

32. **Answer choice (c) is the correct answer.** Multifaceted means having many abilities which most nearly means versatile.

33. **Answer choice (b) is the correct answer.** Every accountant is good at math. Therefore, if someone is not good at math, they cannot be an accountant. Since Angela is not good at math, she is not an accountant.

34. **Answer choice (d) is the correct answer.** Intellectual, scholarly, and brainy all mean intelligent. Charismatic means charming, so it does not belong.

35. **Answer choice (d) is the correct answer.** You ask a question to get an answer. You give an apology to get forgiveness.

36. **Answer choice (c) is the correct answer.** Jeer means to mock or ridicule which most nearly means taunt.

37. **Answer choice (c) is the correct answer.** Preliminary, introductory, and initial all mean in the beginning. Concluding means at the end, so it does not belong.

38. **Answer choice (c) is the correct answer.** While we know that all Meegles are Weegles, and some Weegles have tails, it is uncertain if the Weegles that have tails are Meegles. The statement did not say that all Weegles are Meegles, so there could be some Weegles that are not Meegles, and these could be the Weegles with tails.

39. **Answer choice (a) is the correct answer.** Insult leads to injury, and overexertion leads to fatigue.

40. **Answer choice (c) is the correct answer.** A definition is found in a dictionary, and a map is found in an atlas.

41. **Answer choice (b) is the correct answer.** Vigorous, active, and energetic all mean full of energy or life. Idle means inactive, so it does not belong.

42. **Answer choice (d) is the correct answer.** Mundane means boring or is used to describe something that is done regularly. This most nearly means routine.

43. **Answer choice (a) is the correct answer.** If we put the people in order from least books read to most books read, we get Lucille, Winston, Hank. Therefore, Hank read more books than Lucille.

44. **Answer choice (b) is the correct answer.** Coveted, envied, and desired all refer to something that others want and are jealous of. Expected means something that is not surprising, so it does not belong.

45. **Answer choice (b) is the correct answer.** A charlatan is a fake, or someone who falsely claims to have a specific skill or knowledge. This most nearly means fraud.

46. **Answer choice (a) is the correct answer.** If we order the people from worst to best singer, we get Joe, Lydia, Belinda. Therefore, Joe is a worse singer than Belinda.

47. **Answer choice (d) is the correct answer.** Paragraphs make up an essay, and words make up a sentence.

48. **Answer choice (b) is the correct answer.** Frivolous means silly, or not serious, which is the opposite of serious.

49. **Answer choice (a) is the correct answer.** Approachable, unthreatening, and accessible all refer to things that are easily attainable or reachable. Dangerous means threatening, so it does not belong.

50. **Answer choice (a) is the correct answer.** Flourish means to thrive or develop, which most nearly means prosper.

51. **Answer choice (a) is the correct answer.** If someone is extremely sad, they are depressed. If someone is extremely upset, they are irate.

52. **Answer choice (b) is the correct answer.** Barren means unable to produce, which most nearly means unproductive.

53. **Answer choice (c) is the correct answer.** The first sentence tells us that the only reason Mrs. Ballinski will not be at work is if she is sick. However, it does not tell us that if Mrs. Ballinski is sick, she will definitely not be at work. Therefore, it is uncertain whether Mrs. Ballinski is sick given that she is at work.

54. **Answer choice (b) is the correct answer.** Inadvertent has the same meaning as accidental, and spiteful has the same meaning as malicious.

55. **Answer choice (c) is the correct answer.** Abrasive means showing little concern for others, or harsh. This most nearly means caustic.

56. **Answer choice (a) is the correct answer.** Mediocre means average, which is the opposite of exceptional.

57. **Answer choice (c) is the correct answer.** Morose means gloomy, which most nearly means depressed.

58. **Answer choice (b) is the correct answer.** The first statement tells us that all blue monsters are mean and funny. Therefore, if a monster is not mean or funny, it cannot be blue. Since Ginger is not funny, Ginger is not a blue monster.

59. **Answer choice (d) is the correct answer.** Prudent means careful, which is the opposite of reckless.

60. **Answer choice (c) is the correct answer.** Helium, neon, and oxygen are all types of gas. Since gas is the general category, it does not belong.

Quantitative Skills

61. **Answer choice (d) is the correct answer.** The rule for the sequence is *subtract 4*, so the next number equals $-9 - 4 = -13$.

62. **Answer choice (b) is the correct answer.** Consecutive angles in a parallelogram are supplementary which means they add up to 180.

63. **Answer choice (a) is the correct answer.** The product of $\frac{2}{5}$ and $\frac{15}{2}$ equals $\frac{2}{5} \bullet \frac{15}{2} = 3$. Multiply the result by 3: 3 • 3 = 9.

64. **Answer choice (d) is the correct answer.** This is an "even odd sequence" meaning the even terms follow a certain rule, and the odd terms follow a different rule. The odd terms follow the rule *multiply by 2*, and the even terms follow the rule *add 5*. Therefore, to find the next term, which is the seventh term, use the odd rule and multiply the fifth term by 2: 8 • 2 = 16. To find the next term, which is the eighth term, use the even rule and add 5 to the sixth term: 20 + 5 = 25. Therefore, the next two terms are 16, 25.

65. **Answer choice (a) is the correct answer.** Remember that a fraction bar means division. Therefore, (A) and (C) are equal because they both equal 3 ÷ 4 which equals 0.75. Therefore, (A) and (C) are equal and greater than (B).

66. **Answer choice (c) is the correct answer.** The diameter of the circle is twice the radius, so the diameter is 10. The side length of the square is equal to the diameter of the circle, so the side length of the square is also 10. Therefore, the area of the square is $10^2 = 100$ square units.

67. **Answer choice (b) is the correct answer.** Set up and solve the following equation: $4x = 120 - 40 \rightarrow 4x = 80 \rightarrow x = 20$.

68. **Answer choice (c) is the correct answer.** (A) equals 2 • 4 = 8, (B) equals 6, and (C) equals 3 + 5 = 8. Therefore, (A) is greater than (B).

69. **Answer choice (d) is the correct answer.** The pattern is *add 3, add 5, add 4, add 6*. Therefore, the numbers we add each time are following an "even odd sequence" which means that the even terms follow a certain rule, and the odd terms follow a different rule. The odd terms, the *add 3* and *add 4*, follow the rule *add 1 more than the previous addition*. Therefore, to find the next term use that rule and add 5 to 42: 42 + 5 = 47.

70. **Answer choice (d) is the correct answer.** Because the triangle shown is a right triangle, we know that B is greater than C because B is the hypotenuse (the side across from the 90° angle), and the hypotenuse is always the longest side in a right triangle.

71. **Answer choice (b) is the correct answer.** The rule for the sequence is *subtract 3, add 7*. Since 7 was added to 9 to get to 16, find the next number by subtracting 3 from 16: 16 – 3 = 13.

72. **Answer choice (c) is the correct answer.** (A) equals 3 • 3 = 9, (B) equals 7 • 7 = 49, and (C) equals 10 • 10 = 100. Therefore, (C) minus (B) is greater than (A) because 100 – 49 = 51 which is greater than 9.

73. **Answer choice (b) is the correct answer.** The rule for the sequences is *divide by 2, divide by 3*. Since 18 was divided by 3 to get to 6, find the next number by dividing 6 by 2: 6 ÷ 2 = 3.

74. **Answer choice (a) is the correct answer.** The two diagonals of a square are equal. AC is the diagonal of the square, and BD is half of the diagonal of the square. Therefore, DB equals half of AC.

75. **Answer choice (c) is the correct answer.** Set up and solve the following equation: $\frac{2}{3} \bullet x = \frac{7}{10} \bullet 60 \rightarrow \frac{2}{3} \bullet x = 42 \rightarrow x = 63$.

76. **Answer choice (a) is the correct answer.** The number parts of each term follow the rule *add 3*, so the number part of the next term is 18 + 3 = 21. The letter parts of each term follow the rule *go backwards two letters*, so the letter part of the next term is C. Therefore, the next term is 21C.

77. **Answer choice (c) is the correct answer.** The numbers in this sequence are perfect squares: $1^2 = 1$, $2^2 = 4$, $3^3 = 9$, $4^2 = 16$, and $5^2 = 25$. Therefore, the next number is $6^2 = 36$.

78. **Answer choice (b) is the correct answer.** Count the number of squares in each figure: (A) = 7, (B) = 5, and (C) = 11. Therefore, (A) + (B) > (C) because 7 + 5 = 12 which is greater than 11.

79. **Answer choice (d) is the correct answer.** Set up and solve the following equation: $\frac{5}{6} \bullet x = 50 - 20 \rightarrow \frac{5}{6} \bullet x = 30 \rightarrow x = 36$.

80. **Answer choice (c) is the correct answer.** The rule for the sequence is *subtract 5, add 8*. Since 8 was added to 71 to get to 79, find the next number by subtracting 5 from 79: 79 – 5 = 74.

81. Answer choice (b) is the correct answer. (A), (B), and (C) are all three-fourths shaded.

82. Answer choice (b) is the correct answer. Set up and solve the following equation: $x - 11 = 9^2 + 6 \rightarrow x - 11 = 81 + 6 \rightarrow x - 11 = 87 \rightarrow x = 98$.

83. Answer choice (a) is the correct answer. The rule for the sequence is *add 8, add 9*. Since 9 was added to 53 to get to 62, find the missing number by adding 8 to 62: 62 + 8 = 70.

84. Answer choice (d) is the correct answer. In math, *of* means multiply, so multiply each fraction by the number after "*of*" to find (A), (B), and (C). (A) = 7, (B) = 9, (C) = 9. Therefore, (B) is equal to (C) and greater than (A).

85. Answer choice (d) is the correct answer. Find (A): $A = \pi r^2 \rightarrow A = \pi \bullet 6^2 \rightarrow A = 36\pi \text{ in}^2$. Find (B): $A = s^2 \rightarrow A = 6^2 \rightarrow A = 36 \text{ in}^2$. Find (C): $A = lw \rightarrow A = 4 \bullet 9 \rightarrow A = 36 \text{ in}^2$. Therefore, (B) and (C) are equal and less than (A).

86. Answer choice (c) is the correct answer. The square root of 36 is 6 because $6^2 = 36$. The product of 4 and 8 is 32. Find the difference between 6 and 32: 32 – 6 = 26.

87. Answer choice (a) is the correct answer. The rule for the sequence is *add 1, add 1, multiply by 2*. Since 1 was added to 22 to get 23, and 1 was added to 23 to get 24, find the next number by multiplying 24 by 2: 24 • 2 = 48. Find the next number by adding 1 to 48: 48 + 1 = 49. Therefore, the next two numbers are 48, 49.

88. Answer choice (d) is the correct answer. When numbers are written in scientific notation, the positive exponents tell us how many times to move the decimal point to the right. Therefore, (A) = 81,000, (B) = 90,000, and (C) 140,000, so (B) is greater than (A) and less than (C).

89. Answer choice (c) is the correct answer. The rule for the sequence is *subtract 12*, so the next number is 187 – 12 = 175.

90. Answer choice (d) is the correct answer. Find the perimeter of each rectangle by adding up all of the sides: Left Rectangle = 8 + 8 + 6 + 6 = 28 cm, and Right Rectangle = 2 + 2 + 12 + 12 = 28 cm. Therefore, the perimeters of the two rectangles are the same.

91. Answer choice (b) is the correct answer. Set up and solve the following equation: $x \div 3 = 9 \bullet 5 \rightarrow x \div 3 = 45 \rightarrow x = 135$.

92. **Answer choice (a) is the correct answer.** The pattern is *multiply by 2, add 1, multiply by 2, add 2, multiply by 2, add 3*, so every other term we multiply by 2, and every other term we add a number. The number we add goes up by 1 each time. Therefore, to find the next two terms, multiply by 2 and then add 4: 35 • 2 = 70, and 70 + 4 = 74.

93. **Answer choice (d) is the correct answer.** Set up and solve the following equation, using x as the unknown number: $x = \frac{1}{5} \bullet 60 + 15 \rightarrow x = 12 + 15 \rightarrow x = 27$.

94. **Answer choice (a) is the correct answer.** The first letter in each term follows the rule *go forward 2 letters*, so the first letter in the next term is R. The second letter in each term follows the rule *go forward 2 letters*, so the second letter in the next term is Z. Therefore, the next term is RZ.

95. **Answer choice (d) is the correct answer.** (A) equals 8 ft because the area of a square equals the side length squared, and $8^2 = 64$. (B) equals 4 because the volume of a cube equals the side length cubed, and $4^3 = 64$. (C) equals 16 because the perimeter of a square equals the side length times 4, and 16 • 4 = 64. Therefore, (A) is less than (C) and greater than (B).

96. **Answer choice (b) is the correct answer.** The sum of the angles in a triangle is 180°, so angle A equals 60°. Since all of the angles in the triangle are equal, all of the sides are equal, so AB = AC = BC.

97. **Answer choice (b) is the correct answer.** 10% of 80 = 8, so we want to find how many halves are in 8. There are 2 halves in every whole, so to find the number of halves in 8 wholes, multiply 8 by 2: 8 • 2 = 16 halves.

98. **Answer choice (b) is the correct answer.** Change each number into a decimal. (A) = 0.06, (B) = 0.6, and (C) = 0.6 Therefore, (B) = (C) ≠ (A).

99. **Answer choice (c) is the correct answer.** (A) = 18 – 13 = 5, (B) = 3 • 10 = 30, and (C) = –7 + 13 = 6. Therefore, the product of (A) and (C) is equal to (B) because 5 • 6 = 30.

100. **Answer choice (c) is the correct answer.** Set up and solve the following equation, using x to represent the unknown number: $x = 0.75 \bullet 40 + 15 \rightarrow x = 30 + 15 \rightarrow x = 45$.

101. **Answer choice (d) is the correct answer.** (A) = 0.12, (B) = 0.012, and (C) = 0.12, so (A) is equal to (C) and is greater than (B).

102. Answer choice (a) is the correct answer. The rule for the sequences is *add 13*, so the next number is 795 + 13 = 808.

103. Answer choice (b) is the correct answer. The pattern written in standard numbers is 5, 10, 20, 40, so the rule is *multiply by 2*. Therefore, the next number is 40 • 2 = 80, which is written as LXXX in Roman numerals.

104. Answer choice (c) is the correct answer. Set up and solve the following equation, using x to represent the unknown number: $x + 30 = \frac{8}{9} \bullet 63 \rightarrow x + 30 = 56 \rightarrow x = 26$.

105. Answer choice (a) is the correct answer. Remember that we don't distribute for (A) or (C), so (A) = $4xy$ and (C) = $16xy$. Therefore, (A) = (B) ≠ (C).

106. Answer choice (c) is the correct answer. Set up and solve the following equation, using x to represent the unknown number: $0.2x = \frac{5}{8} \bullet 48 \rightarrow 0.2x = 30 \rightarrow x = 150$.

107. Answer choice (b) is the correct answer. The sum of the interior angles in a polygon increases as the number of sides increases. Therefore, the sum of the interior angles in an octagon is greater than the sum of the interior angles in a hexagon which is greater than the sum of the interior angles in a triangle, so (C) is greater than (A) but less than (B).

108. Answer choice (d) is the correct answer. Set up and solve the following equation, using x to represent the unknown number: $35 - x = \frac{1}{3} \bullet 18 + 10 \rightarrow 35 - x = 6 + 10 \rightarrow 35 - x = 16 \rightarrow x = 19$.

109. Answer choice (d) is the correct answer. The rule for the sequence is *divide by 4*, so the next number equals 8 ÷ 4 = 2.

110. Answer choice (c) is the correct answer. Use PEMDAS to simplify each expression. (A) = 10 – 4 + 40 = 6 + 40 = 46. (B) = 40 ÷ 4 × 5 = 10 × 5 = 50. (C) = 10 + 5(3 + 4) = 10 + 5(7) = 10 + 35 = 45. Therefore, (A) is greater than (C) but less than (B).

111. Answer choice (a) is the correct answer. Set up and solve the following equation, using x to represent the unknown number: $x = 4^3 \div 2 - 7 \rightarrow x = 64 \div 2 - 7 \rightarrow x = 32 - 7 \rightarrow x = 25$.

112. Answer choice (b) is the correct answer. Since the three angles form a straight line, they add up to 180°. Therefore, $2x + y = 180$, so (C) equals 180. Rearrange the equation $2x + y =$

180 to get that $2x = 180 - y$, so (A) equals $180 - y$. Therefore, (A) and (B) are equal and less than (C).

Reading

113. Answer choice (c) is the correct answer. The passage talks about a myth involving the origins of baseball. It starts off by saying that people believe this myth, and in the end, it says this myth was debunked. Therefore, the main idea of the passage is most like the saying, "Don't believe everything you hear."

114. Answer choice (a) is the correct answer. In the third paragraph, it says, "the Mills Commission was formed to seek evidence on the origins of baseball," which means the Mills Commission was formed to find evidence to answer the debate, or dispute, about the origins of baseball.

115. Answer choice (a) is the correct answer. In the first paragraph, it states, "Some people believe that Abner Doubleday invented baseball in Cooperstown, New York …"

116. Answer choice (a) is the correct answer. The passage says, "people have debunked the myth of Abner Doubleday by "pointing out inconsistencies and flaws." Therefore, since people were pointing out flaws or errors in Abner Doubleday's story, they were proving that the myth is untrue, so "debunked" most nearly means exposed.

117. Answer choice (c) is the correct answer. The passage talks about a myth involving the origins of baseball. It starts off by saying that people believe this myth, and in the end, it explains that this myth was debunked, or proven false. Therefore, the main purpose of the passage is to show how a commonly believed story is actually a myth.

118. Answer choice (b) is the correct answer. The fourth paragraph states, "Graves also claimed to be a playmate of Doubleday, but was 15 years younger than him."

119. Answer choice (d) is the correct answer. The first line of the second paragraph states, "Doubleday was attending West Point, a military academy in West Point, New York."

120. Answer choice (d) is the correct answer. The last paragraph states, "While the motive behind Grave's fabrication is unclear …"

121. **Answer choice (b) is the correct answer.** The passage is talking about the origins of baseball and how one common story is actually a myth. Therefore, the author would most likely discuss the real origins of baseball next.

122. **Answer choice (b) is the correct answer.** The last paragraph states, "While the motive behind Grave's fabrication is unclear …" The passage is about how Grave's made up a story about the origins of baseball, so "fabrication" most nearly means a made up story.

123. **Answer choice (d) is the correct answer.** The story is told from the point of view of Devin. The first sentence says, "I was initially woken up … my mother shouting, 'Devin! Devin! …" so Devin is telling the story.

124. **Answer choice (a) is the correct answer.** Personification is when you give a personal or human characteristic to something non-human. In the line, "I was initially woken up by my alarm clock yelling at me to get up," the alarm clock is given the human characteristic of yelling.

125. **Answer choice (c) is the correct answer.** In the beginning of the story, Devin did not like school. The third paragraph says he dragged himself out of bed. Throughout the story he kept mentioning that he had 42 days left; he was counting down the days until school was over because he was miserable. At the end of the passage, he meets another student and the last line of the story says, "Maybe it won't be as bad as I thought." Therefore, at the end of the story Devin found school bearable.

126. **Answer choice (c) is the correct answer.** The fifth paragraph states, ``I hated physics, along with all other classes except band."

127. **Answer choice (b) is the correct answer.** Devin describes the car ride, saying that his mother complained as usual and he just nodded his head, "not actually listening or responding." Therefore, Devin and his mother are disconnected.

128. **Answer choice (a) is the correct answer.** Sean says to Devin, "Cool sweatshirt. That's my favorite band." Therefore, Sean and Devin bonded over the fact that they like the same band.

129. **Answer choice (b) is the correct answer.** When Sean talks to Devin, Devin is "taken aback that someone was actually talking to me." This shows that Devin felt invisible at school.

130. **Answer choice (c) is the correct answer.** When Sean talks to Devin, Devin is "taken aback that someone was actually talking to me." Therefore, Devin is surprised that someone noticed him.

131. **Answer choice (d) is the correct answer.** Devin kept repeating "42 days left" to show that he was counting down the day until school was over since he hated it so much. Therefore, this phrase emphasizes Devin's desire to be finished with high school.

132. **Answer choice (d) is the correct answer.** In the beginning of the story, Devin hated school. After meeting Sean, he thinks to himself, "Maybe it won't be as bad as I thought." Therefore, the saying , "There is light at the end of the tunnel," fits the theme of the story because it means that a bad situation is temporary and will eventually end.

133. **Answer choice (c) is the correct answer.** The passage provides information about the Pyramid of Giza, including when it was made, theories about how it was made, and how large it is.

134. **Answer choice (a) is the correct answer.** The first paragraph states, "Due to erosion and the removal of the top piece, the current height of the pyramid is only 455 feet tall." Erosion caused the pyramid to shrink, so we can infer that it means "causes stone to wear away."

135. **Answer choice (b) is the correct answer.** The passage says, "While we may never come to a consensus about what methods were used to create such an amazing structure, there is one thing we should all be able to agree on: an extensive amount of thought and effort went into building the Pyramid of Giza." Therefore, the sentence is saying that while we may never agree on the methods, we can all agree on the fact that the Pyramid of Giza took a lot of work and effort, so "consensus" means in agreement.

136. **Answer choice (b) is the correct answer.** The third paragraph presents various theories about how the pyramid was built. It says that some people suggest that they used ramps, others suggest wooden sleds, and others suggest water was used.

137. **Answer choice (d) is the correct answer.** The third paragraph mentions that some people think ramps were used to build the Pyramid of Giza, others think wooden sleds were used, and others think water was used.It does not mention ladders being used.

138. **Answer choice (c) is the correct answer.** The first sentence of the passage states, "The Pyramid of Giza is the last remaining wonder of the ancient world."

139. **Answer choice (d) is the correct answer.** The first paragraph states, "Due to erosion and the removal of the top piece, the current height of the pyramid is only about 455 feet tall."

140. **Answer choice (b) is the correct answer.** The passage says, "While we may never come to a consensus about what methods were used to create such an amazing structure, there is one thing we should all be able to agree on: an extensive amount of thought and effort went into building the Pyramid of Giza." The passage talks about how large the pyramid is, discussing how it is unclear how something so large was built. Therefore, "extensive amount of thought and effort" means a great deal of thought and effort, so "extensive" means "considerable."

141. **Answer choice (c) is the correct answer.** The first paragraph states that the pyramid is 755 feet long, and one football field is 350 feet long. Therefore, the pyramid is longer than the length of two football fields.

142. **Answer choice (a) is the correct answer.** The first paragraph says, "up until 1889 the Pyramid of Giza was the tallest structure made by human hands." This means that in 1889, a structure was built by human hands that was taller than the Pyramid of Giza, which was 481 feet tall.

143. **Answer choice (d) is the correct answer.** The passage talks about how bacteria can actually be good and play a "vital role in many bodily functions." The passage also states that this is "contrary to popular opinion" in paragraph 2. Therefore, the main idea of the passage is to discuss the surprising truth about bacteria: bacteria can actually be helpful.

144. **Answer choice (b) is the correct answer.** The first paragraph says the ratio of bacteria to human cells is 10 to 1, so the ratio of human cells to bacteria is 1 to 10.

145. **Answer choice (d) is the correct answer.** The fourth paragraph states, "Powerful antibiotics are also known to kill not only bad bacteria, but also decimate large populations of beneficial bacteria as well." It then goes on to say, "this can often leave the body exposed to be overtaken by fast growing, disease causing organisms." Therefore, antibiotics can leave your body exposed, or susceptible, to disease causing organisms.

146. **Answer choice (c) is the correct answer.** The third paragraph says that the bacteria in our gastro-intestinal tract "carry the genes and produce the enzymes necessary for us to digest foods and absorb nutrients."

147. **Answer choice (a) is the correct answer.** The passage says that under certain conditions advantageous bacteria becomes pathogenic, and causes disease or death. Since pathogenic bacteria causes disease or death, pathogenic means harmful.

148. **Answer choice (d) is the correct answer.** The fourth paragraph mentions that environmental stress, smoking, and acidic foods can affect the equilibrium between human cells and microbes.

149. **Answer choice (a) is the correct answer.** The passage says in the second paragraph that "contrary to popular opinion" bacteria plays a vital role in many bodily functions. Therefore, we can infer that some people don't know that some bacteria are helpful.

150. **Answer choice (c) is the correct answer.** The passage states that bacteria play a vital role in many bodily functions. It then goes on to discuss the role bacteria plays, and talks about how bacteria helps with important bodily functions such as nutrient absorption. Therefore, vital most nearly means important or essential.

151. **Answer choice (c) is the correct answer.** The fourth paragraph discusses how environmental stress, smoking, acidic foods, and antibiotics can cause harmful bacteria.

152. **Answer choice (b) is the correct answer.** The style of writing is not advanced enough to be written by a biomedical engineer or brain surgeon. It was not written by a novelist because a novelist would write a novel or a story. The passage is discussing a science topic in a way that is easy to understand, so it was most likely written by a health and science blogger.

153. **Answer choice (a) is the correct answer.** A false accusation is a false claim, or allegation, made about someone or something.

154. **Answer choice (d) is the correct answer.** A collaborative project is a project where people work together. This is the same as a cooperative project.

155. **Answer choice (c) is the correct answer.** A furtive glance is a secretive, or sneaky, glance.

156. **Answer choice (b) is the correct answer.** Unrequited love is love that is not reciprocated (if one person loves another person, but that other person doesn't love them back). Therefore, unrequited love is the same as unreturned love.

157. **Answer choice (a) is the correct answer.** A grandiose wedding is grand and impressive. This is the same as an extravagant wedding.

158. **Answer choice (a) is the correct answer.** A callous remark is a heartless, or insensitive, remark.

159. **Answer choice (d) is the correct answer.** To abdicate the throne means to resign, or give up, the throne. This is the same as renouncing the throne.

160. **Answer choice (d) is the correct answer.** A sly fox is a clever, or cunning, fox.

161. **Answer choice (c) is the correct answer.** An agile athlete is an athlete that is able to move quickly and easily. This is the same as a nimble athlete.

162. **Answer choice (b) is the correct answer.** To abstain from something means to not do something. This is the same as refraining from something.

163. **Answer choice (b) is the correct answer.** A calculated decision is a decision that was thought out and planned. This is the same as a premeditated decision.

164. **Answer choice (d) is the correct answer.** A transitory thought is temporary, or fleeting, thought.

165. **Answer choice (b) is the correct answer.** A candid photo is a photo that is taken when the person is not posing. Therefore, a candid photo shows a person's authentic, non-staged self, so a candid photo is an honest photo.

166. **Answer choice (a) is the correct answer.** A meticulous approach is an approach that is taken with great attention to detail. This is the same as a precise approach.

167. **Answer choice (b) is the correct answer.** A condescending tone is meant to make someone else feel inferior. This is the same as a patronizing tone.

168. **Answer choice (c) is the correct answer.** A trivial problem is insignificant, or meaningless.

169. **Answer choice (d) is the correct answer.** A sinister smile is an evil, or menacing, smile.

170. **Answer choice (b) is the correct answer.** A partisan judge is a biased, or prejudiced, judge.

171. **Answer choice (c) is the correct answer.** Tentative plans are not definite plans. This is the same as unconfirmed plans.

172. **Answer choice (a) is the correct answer.** A comprehensive guide is a thorough, or complete, guide.

173. **Answer choice (d) is the correct answer.** A precocious child is a mature, developed, or advanced child.

174. **Answer choice (c) is the correct answer.** To coddle a child means to treat a child in an overprotective way. This is similar to pampering a child.

Mathematics

175. **Answer choice (a) is the correct answer.** 891 • 323 = 20,493. To see a step-by-step solution, use the following online calculator: Multi-Digit Multiplication Calculator

176. **Answer choice (a) is the correct answer.** $\sqrt{25} < \sqrt{27} < \sqrt{36}$. $\sqrt{25} = 5$ and $\sqrt{36} = 6$, so $5 < \sqrt{27} < 6$.

177. **Answer choice (c) is the correct answer.** Plug in 50 for F and solve for C: $50 = \frac{9}{5}C + 32 \rightarrow 18 = \frac{9}{5}C \rightarrow C = 10°$.

178. **Answer choice (b) is the correct answer.** If you add the same amount to every number in a data set, the mean, median, and mode change by the amount you added. The range stays the same. Therefore, the median increases by 5.

179. **Answer choice (a) is the correct answer.** Set up and solve the following proportion, using x to represent the number of miles represented by 4.8: $\frac{1.6}{30} = \frac{4.8}{x} \rightarrow 144 = 1.6x \rightarrow x = 90$ miles.

180. **Answer choice (d) is the correct answer.** The median of a data set is the middle number when the numbers are ordered from least to greatest. Order the numbers from least to greatest: 3, 5, 8, 10, 16, 29, 34. 10 is the middle number, so 10 is the median.

181. **Answer choice (d) is the correct answer.** 36 out of the 90 total books purchased were non fiction. Change $\frac{36}{90}$ into a percent: $\frac{36}{90} = \frac{4}{10} = 0.4 = 40\%$.

182. Answer choice (c) is the correct answer. The question we are answering is, "\$800 is 40% of what number?" Therefore, we can set up and solve the following equation, using x to represent the total money Alicia initially had in her savings: $800 = 0.4x \rightarrow x = \$2000$.

183. Answer choice (d) is the correct answer. To change a fraction into a percent, first change it into a decimal by dividing the numerator by the denominator: $4 \div 5 = 0.8$. Now move the decimal point two places to the right to get that $0.8 = 80\%$.

184. Answer choice (a) is the correct answer. The formula for the area of a circle is $A = \pi r^2$. Find the radius of the circle by plugging in 64π for A and solving for r: $64\pi = \pi r^2 \rightarrow 64 = r^2 \rightarrow r = 8$ feet. The formula for the circumference of a circle is $C = 2\pi r$, so the circumference of a circle with a radius of 8 feet is $2\pi \bullet 8 = 16\pi$ feet.

185. Answer choice (a) is the correct answer. Use the equation $d = rt$, where d, r, and t represent the distance, rate, and time respectively: $275 = 25t \rightarrow t = 11$ hours.

186. Answer choice (c) is the correct answer. The area of a square is equal to the side length squared. Therefore, the side length of the square is 8 m because $8^2 = 64$. The diameter of the circle equals the side length of the square, so the diameter equals 8 m. The radius is half of the diameter, so the radius is 4 m. The formula for the area of a circle is $A = \pi r^2$, so the area of the circle equals $\pi \bullet 4^2 = 16\pi$ m^2.

187. Answer choice (b) is the correct answer. Find the perimeter by adding up all four sides: $10 + 10 + 3 + 3 = 26$ cm.

188. Answer choice (d) is the correct answer. A quadrilateral is a four-sided shape. A hexagon is a six-sided shape, so a hexagon is not a quadrilateral.

189. Answer choice (b) is the correct answer. Answer choice (b) is the correct answer. The radius of a circle is half of the diameter: $17 \div 2 = 8.5$

190. Answer choice (b) is the correct answer. Find 30% of \$500: 30% of $500 = 0.3 \bullet 500 =$ \$150.

191. Answer choice (c) is the correct answer. 25 fourth graders like dogs, and 15 third graders like fish. Find the difference: $25 – 15 = 10$.

192. Answer choice (d) is the correct answer. The formula for the circumference of a circle is $C = 2\pi r$. Find the radius by plugging in 25π for C and solving for r: $25\pi = 2\pi r \rightarrow r = 12.5$ meters.

193. **Answer choice (a) is the correct answer.** Use PEMDAS to simplify the expression: Complete the addition in the parentheses first: $13 – 2(2 + 3) \rightarrow 13 – 2(5)$. Perform the multiplication next: $13 – 2(5) \rightarrow 13 – 10$. Perform the subtraction: $13 – 10 = 3$.

194. **Answer choice (c) is the correct answer.** Let L represent the number of cupcakes Lanie ate. Since Rachel ate 2 more cupcakes than Lanie, Rachel ate $L + 2$ cupcakes. In total, they ate 20 cupcakes, so $L + L + 2 = 20$. Solve for L: $2L + 2 = 20 \rightarrow 2L = 18 \rightarrow L = 9$. Therefore, Lanie ate 9 cupcakes.

195. **Answer choice (d) is the correct answer.** There are 100 centimeters in 1 meter, so multiply 0.42 by 100: $0.42 \bullet 100 = 42$ centimeters.

196. **Answer choice (b) is the correct answer.** The associative property states that the way the numbers are grouped (put into parentheses) in an addition or multiplication problem does not change the answer.

197. **Answer choice (c) is the correct answer.** A rectangle has 2 lines of symmetry, an equilateral triangle has 3 lines of symmetry, and an isosceles trapezoid has 1 line of symmetry. A parallelogram has no lines of symmetry.

198. **Answer choice (c) is the correct answer.** The small number, the exponent, tells us how many times to multiply the large number, the base, by itself: $5^4 = 5 \bullet 5 \bullet 5 \bullet 5 = 625$.

199. **Answer choice (d) is the correct answer.** If a number is divisible by 5, it must end in a 0 or 5. Therefore, we can eliminate answer choice (a). If the sum of the digits of a number is divisible by 3, then the number is divisible by 3. Therefore, 270 is divisible by 3 because $2 + 7 + 0 = 9$ which is divisible by 3.

200. **Answer choice (a) is the correct answer.** Factors are numbers that you multiply together to make another number; a number is divisible by its factors. 4 is the greatest common factor of 16, 12 and 36 because it is the largest number that 16, 12 and 36 are all divisible by.

201. **Answer choice (c) is the correct answer.** Move left to right: $20 – 10.5 = 9.5$, and $9.5 – 4.3 = 5.2$

202. **Answer choice (c) is the correct answer.** The LCM of 3 and 6 is 6, so change the denominator of the second fraction to a 6 and add the numerators: $\frac{5}{6}+\frac{2}{6}=\frac{7}{6}$.

203. Answer choice (d) is the correct answer. The units of each part of a ratio must be the same. There are 36 inches in 1 yard, so 36 inches equals 1 yard. Therefore, the ratio of 36 inches to 2 yards equals the ratio of 1 yard to 2 yards which equals 1:2.

204. Answer choice (d) is the correct answer. If Helen has cleaned $\frac{5}{12}$ of the house, then she has $\frac{7}{12}$ left to clean. If Helen cleaned $\frac{5}{12}$ of the house in 60 minutes, find the time it takes her to clean $\frac{1}{12}$ of the house by dividing 60 by 5: 60 ÷ 5 = 12 minutes. Find the time it takes her to clean $\frac{7}{12}$ of the house by multiplying the time it takes her to clean $\frac{1}{12}$ of the house by 7: 12 • 7 = 84 minutes.

205. Answer choice (c) is the correct answer. If 45 out of 60 members have brown hair, then 15 out of 60 members do not have brown hair: $\frac{15}{60} = \frac{1}{4} = 25\%$.

206. Answer choice (d) is the correct answer. Set up and solve the following proportion, using l to represent the length: $\frac{7}{4} = \frac{l}{12} \rightarrow 84 = 4l \rightarrow l = 21$. Find the area by multiplying the length by the width: 21 • 12 = 252 ft^2.

207. Answer choice (a) is the correct answer. Use the pythagorean theorem to find the missing side: $a^2 + b^2 = c^2 \rightarrow 5^2 + 12^2 = c^2 \rightarrow 25 + 144 = c^2 \rightarrow 169 = c^2 \rightarrow c = 13$.

208. Answer choice (d) is the correct answer. Square both sides of the equation to get $a + 3 = 25$. Subtract 3 from both sides of the equation to get $a = 22$.

209. Answer choice (c) is the correct answer. If the area of the base of the small cube is 4 cm, then the side length is 2 because $2^2 = 4$. The volume of a cube equals the side length cubed, so the volume of the small cube equals $2^3 = 8$. The volume of the large cube equals $8^3 = 512$. Find the number of small cubes that can fit in the large cube by dividing the volume of the large cube by the volume of the small cube: 512 ÷ 8 = 64.

210. Answer choice (b) is the correct answer. There are 60 minutes in 1 hour, so 1 hour and 10 minutes equals 70 minutes. There are 60 seconds in 1 minute, so multiply 70 minutes by 60 to find the number of seconds: 70 • 60 = 4200 seconds.

211. Answer choice (c) is the correct answer. A sphere is a round solid figure like a ball or globe.

212. Answer choice (b) is the correct answer. Cross multiply and solve: $15x = 27(5) \rightarrow 15x = 135 \rightarrow x = 9$.

213. Answer choice (a) is the correct answer. Set up and solve the following equation, using $2x$ to represent the number of boys and $5x$ to represent the number of girls: $2x + 5x = 70 \rightarrow 7x = 70 \rightarrow x = 10$. Therefore, the number of boys equals $2 \bullet 10 = 20$ boys.

214. Answer choice (c) is the correct answer. One quarter equals 25 cents, so there are 4 quarters in every dollar. Therefore, \$4 equals 16 quarters ($4 \bullet 4 = 16$). One dime equals 10 cents, so there are 10 dimes in every dollar. Therefore, \$3 equals 30 dimes ($3 \bullet 10 = 30$). One penny equals 1 cent, so 10 cents equals 10 pennies. Therefore, the total number of coins equals $16 + 30 + 10 = 56$ coins.

215. Answer choice (a) is the correct answer. Any exterior angle of a triangle is equal to the sum of the opposite interior angles. The angle measuring 134° is an exterior angle, and the angles measuring x° and 37° are opposite interior angles. Therefore, $134 = x + 37$ so $x = 134 – 37 = 97$.

216. Answer choice (d) is the correct answer. When a number is written in scientific notation, the positive exponent tells us how many times to move the decimal point to the right. Therefore, $3.4 \times 10^3 = 3400$, $5 \times 10^2 = 500$, and $2 \times 10^1 = 20$. Add the three numbers together: $3400 + 500 + 20 = 3920$. Therefore, the 9 is in the hundreds place.

217. Answer choice (c) is the correct answer. Mason studies for a total of 40 minutes each day ($25 + 15 = 40$). Find the number of minutes he studied over 6 days by multiplying 40 by 6: $40 \bullet 6 = 240$ minutes. There are 60 minutes in an hour, so divide 240 minutes by 60 to find the number of hours: $240 \div 60 = 4$ hours.

218. Answer choice (a) is the correct answer. The volume of a cube is equal to the side length cubed. Therefore, the side length of a cube with a volume of 27 cubic inches is 3 inches because $3^3 = 27$.

219. Answer choice (b) is the correct answer. The equation is written in the form $y = mx + b$, where m represents the slope and b represents the y-intercept. Therefore, the y-intercept of this line is –8. The y-intercept is where the graph crosses the y-axis, so the x-coordinate of every y-intercept is 0. Therefore, the y-intercept of this line written as a point is (0, –8).

220. Answer choice (b) is the correct answer. We want to answer the question, "9 is ⅜ of what number?" to solve for the total number of slices. Set up and solve the following equation

using x as the total number of slices: $9 = \frac{3}{8} \bullet x \rightarrow x = 24$. If there were 24 total slices, and they ate 9 slices, there are 15 slices left (24 – 9 = 15).

221. Answer choice (d) is the correct answer. Adding a negative number is the same as subtracting, so 44 + (–60) = 44 – 60. Subtract the numbers and make the result negative: 60 – 44 = 16, so 44 – 60 = –16.

222. Answer choice (b) is the correct answer. 1 hour past 4:50 PM is 5:50 PM, and 50 minutes past 5:50 PM is 6:40 PM.

223. Answer choice (a) is the correct answer. To find the probability of an event, find the ratio of the favorable outcomes to the total outcomes. There are 14 blocks that are *not* blue, so there are 14 favorable outcomes. There are 18 total blocks, so there are 18 total outcomes. Therefore, the probability of choosing a block that is *not* blue is 14/18 which simplifies to 7/9.

224. Answer choice (b) is the correct answer. An angle can be named by its vertex or by the three letters, putting the vertex in the middle. Therefore, the angle can be named Angle E, Angle DEF, or Angle FED.

225. Answer choice (c) is the correct answer. Three months ago, the plant was 6.7 inches shorter than it is now, so subtract 6.7 inches from 23.4 inches: 23.4 – 6.7 = 16.7 inches.

226. Answer choice (a) is the correct answer. Add 8 to both sides of the equation to get $2y = 32$. Divide both sides by 2 to get $y = 16$.

227. Answer choice (d) is the correct answer. The slopes of perpendicular lines are opposite reciprocals (example: $\frac{2}{3}$ and $-\frac{3}{2}$). The given equation is in the form $y = mx + b$, where m represents the slope and b represents the y-intercept, so the slope is 3. The opposite reciprocal of 3 is $-\frac{1}{3}$. Answer choice (d) is the only answer choice with a slope of $-\frac{1}{3}$.

228. Answer choice (c) is the correct answer. The faces of a cube are the square-shaped sides. Therefore, there are 6 faces on a cube.

229. Answer choice (b) is the correct answer. Divide both sides by 5 to get $|x| = 2$. The absolute value of a number is the distance between the number and zero: the absolute value of any number except 0 is always positive. Therefore, x can equal 2 or –2 because |2| = 2 and |–2| = 2.

230. Answer choice (a) is the correct answer. Plug each point into the equation and see which one makes the equation true. If you plug in the point (3, 1), the equation is true. Plug in 3 for x and 1 for y: $3(3) + 2(1) = 11 \rightarrow 9 + 2 = 11 \rightarrow 11 = 11$.

231. Answer choice (b) is the correct answer. Since M is the midpoint of segment AB, AM = MB. Set the expressions representing AM and MB equal to each other and solve for x: $3x + 15 = 5x + 7 \rightarrow 15 = 2x + 7 \rightarrow 8 = 2x \rightarrow x = 4$.

232. Answer choice (d) is the correct answer. Solve the inequality by first subtracting 15 from both sides to get $-5x \geq -5$. Divide both sides by –5, remember to flip the inequality sign to get $x \leq 1$.

233. Answer choice (d) is the correct answer. The amount of tax applied equals the difference in the original cost and the cost after tax: \$165 – \$150 = \$15. Now we need to figure out what percent of the original cost the tax amount is, so we are answering the question, "15 is what percent of 150." Set up and solve the following equation, using x to represent the percent in decimal form: $15 = x \cdot 150 \rightarrow x = 0.1$ which is 10%.

234. Answer choice (a) is the correct answer. When performing long division, place the first number underneath the division box and the second number outside of the division box. To see a step by step solution of this problem, follow this link and type in the problem: how to perform long division

235. Answer choice (b) is the correct answer. Consecutive numbers are numbers that are one after the other; they follow each other in order, with no gaps, from smallest to largest. Consecutive even numbers are even numbers that are one after the other; they go up by 2 each time. Remember that 0 is an even number.

236. Answer choice (b) is the correct answer. Points that are collinear are on the same line. Points D, B, and E are all on the same line.

237. Answer choice (a) is the correct answer. When you square a negative number, it turns positive. Therefore, x^2 must be greater than $(-2)^2$ which is 4. You can test this by letting $x = -3$ because x has to be less than –2. If $x = -3$, then $x^2 = (-3)^2 = 9$ which is greater than 4.

238. Answer choice (d) is the correct answer. If the probability of choosing a cherry candy is $\frac{2}{7}$, then $\frac{2}{7}$ of the candies in the bag are cherry candies. Since there are 14 cherry candies, we can set up and solve the following equation, using x as the total pieces of candy: 14 =

$\frac{2}{7} \bullet x \rightarrow x = 49$ total pieces. Find the number of other candies by subtracting the cherry candies from the total candies: 49 – 14 = 35 other candies.

Language

239. Answer choice (c) is the correct answer. An apostrophe is needed in "Hanson's" because an apostrophe is needed when showing possession.

240. Answer choice (a) is the correct answer. "Went" should be "gone" because "gone" is the past participle of go, and the past participle is used with words such as "had," "has," or "have."

241. Answer choice (b) is the correct answer. There needs to be a period after "Dr."

242. Answer choice (b) is the correct answer. There needs to be a comma in between "long" and "boring" because they are both describing the lecture.

243. Answer choice (d) is the correct answer. There are no mistakes in answer choices (a), (b), and (c).

244. Answer choice (a) is the correct answer. "But" should not be capitalized because we do not capitalize the first word of the second part of a quote.

245. Answer choice (d) is the correct answer. There are no mistakes in answer choices (a), (b), and (c).

246. Answer choice (b) is the correct answer. The semicolon should be a comma because a semicolon can only separate two independent clauses. The phrase "If you don't perform well at your job," is not an independent clause.

247. Answer choice (b) is the correct answer. You either need two commas around Angela or no commas around Anglea. You cannot put one comma after Angela because the phrase, "is coming over for dinner" is not an independent clause.

248. Answer choice (c) is the correct answer. "Between" should be "among" because "among" is used with 3 or more items.

249. Answer choice (c) is the correct answer. "Neither" goes with "nor," so the "or" should be "nor."

250. **Answer choice (a) is the correct answer.** "Mayor" needs to be capitalized because titles that are followed by a name must be capitalized.

251. **Answer choice (b) is the correct answer.** "Isn't going to listen to nobody" is a double negative and should be "isn't going to listen to anybody."

252. **Answer choice (a) is the correct answer.** "I" should be "me" because it is being used as the object of the sentence. "Me" is an object pronoun and "I" is a subject pronoun.

253. **Answer choice (a) is incorrect.** There needs to be a comma before "yet." When two independent clauses are joined using a coordinating conjunction, a comma is needed before the conjunction.

254. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

255. **Answer choice (c) is the correct answer.** "Then" should be "than" because "than" is used for comparisons. "Then" indicates time.

256. **Answer choice (b) is the correct answer.** "Quiet" should be "quietly" because it is modifying "speak" which is a verb. Adverbs are used to modify verbs, and "quietly" is an adverb.

257. **Answer choice (b) is the correct answer.** Do not use a colon with the phrase "for example."

258. **Answer choice (c) is the correct answer.** "Loudest" should be "louder" because we are only comparing two people. "Loudest" is used to compare 3 or more people or things.

259. **Answer choice (a) is the correct answer.** "West" should not be capitalized because we do not capitalize directions unless they are part of a specific region such as the East Coast, or the Middle East.

260. **Answer choice (c) is the correct answer.** "Who" should be "whom" because "whom" refers to the subject of a sentence. You can also determine if you should use "who" vs "whom" by determining if you answer the question with "him" or "he." "Him" goes with "whom" and "he" goes with "who." We would answer this question with, "the necklace belongs to him," so we use "whom."

261. **Answer choice (a) is the correct answer.** “Feeling good” is incorrect and should be “feeling well.”

262. **Answer choice (b) is the correct answer.** The sentence is a question, so there needs to be a question mark at the end of it.

263. **Answer choice (c) is the correct answer.** “Whose” should be “who’s” which is a contraction meaning “who is.” “Whose” is used to show possession.

264. **Answer choice (b) is the correct answer.** Answer choice (b) is a run on. “Yesterday they took a trip to the zoo,” and “they saw the new exhibit” are both complete sentences. There needs to be a period, semicolon, or comma and coordinating conjunction in between the two sentences.

265. **Answer choice (a) is the correct answer.** The closing quotation mark should go after “plants?” because that is the end of the quote.

266. **Answer choice (c) is the correct answer.** “More stricter” is incorrect and should be “stricter” or “more strict.”

267. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

268. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

269. **Answer choice (a) is the correct answer.** “Brocolli” is spelled incorrectly and should be spelled “broccoli.”

270. **Answer choice (c) is the correct answer.** “Tommorow” is spelled incorrectly and should be spelled “tomorrow.”

271. **Answer choice (a) is the correct answer.** “Privelege” is spelled incorrectly and should be spelled “privilege.”

272. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

273. **Answer choice (b) is the correct answer.** “Suprise” is spelled incorrectly and should be spelled “surprise.”

274. **Answer choice (b) is the correct answer.** "Succesful" is spelled incorrectly and should be spelled. "successful."

275. **Answer choice (a) is the correct answer.** "Dessert" is spelled incorrectly and should be spelled "desert." While "dessert" is a word, it refers to food.

276. **Answer choice (d) is the correct answer.** There are no mistakes in answer choices (a), (b), and (c).

277. **Answer choice (c) is the correct answer.** "Vehical" is spelled incorrectly and should be spelled "vehicle."

278. **Answer choice (a) is the correct answer.** "Percieved" is spelled incorrectly and should be spelled "perceived."

279. **Answer choice (a) is the correct answer.** "Meanwhile" means "at the same time." This works in the blank because Randall is going to chop the onions, and at the same time, I will season the chicken and turn on the oven.

280. **Answer choice (b) is the correct answer.** Answer choice (a) is incorrect because it says that the sunrise was sitting on the beach. Answer choice (c) is incorrect because there is no subject, so it is a fragment. Answer choice (d) is incorrect because "they watched" and"the sunrise" should not be split up in the sentence.

281. **Answer choice (c) is the correct answer.** The paragraph discusses the unusual role nannies play in a family: while they spend a significant amount of time with the children they care for, sometimes raise the children they care for, and are relied upon by parents, some parents still don't treat them like family members, crop them out of photos, and won't acknowledge how helpful they are. Therefore, the topic sentence, "Nannies occupy an unusual role in the modern family," fits the main idea the best.

282. **Answer choice (d) is the correct answer.** The second sentence is the result of the first sentence. Since Daneil woke up with a fever and stomach ache, he had to miss school to go to the doctor. Therefore, words and phrases such as "as a result", "so", or "because of this" would fit in the blank. Answer choice (a), (b), and (c) don't have the same meaning as those phrases, so none of those answers are correct.

283. **Answer choice (c) is the correct answer.** Choice (a) is incorrect because the phrase after the comma must be an independent clause, and the phrase in sentence (a) is not an

independent clause. Answer choice (b) is incorrect because it is redundant: it repeats that the snow is causing classes to be canceled. Answer choice (d) is incorrect because it is awkwardly phrased.

284. **Answer choice (d) is the correct answer.** Answer choices (a) and (b) are incorrect because the phrase "is what we must do" is awkward. Answer choice (c) is incorrect because "went" should be "go."

285. **Answer choice (a) is the correct answer.** Magnetism and sound waves are topics covered in physics. The fact that they are responsible for how your headphones work is an example of how physics is part of everyday life.

286. **Answer choice (a) is the correct answer.** For the topic in answer choice (a), there are enough tips to write about to take up a page. How to work more efficiently is not a comprehensive enough topic to need more than a page. The topic in answer choice (b) would only require a paragraph or two, and the topic in answer choice (c) would require at least a few pages.

287. **Answer choice (b) is the correct answer.** The second sentence is a result of the first sentence. Because the fog made it impossible to see, searching for our missing dog was useless. Therefore, the best word to put in the blank is "therefore" which means "because of this" or "as a result."

288. **Answer choice (b) is the correct answer.** The main idea of the paragraph is to discuss how plagiarism is often accidental and to give examples of accidental plagiarism. Therefore, the best topic sentence is, " Most forms of plagiarism are surprisingly unintentional."

289. **Answer choice (c) is the correct answer.** Answer choice (a) is incorrect because it says that the children were served on paper plates. Answer choice (b) is incorrect because it says he was on paper plates. Answer choice (d) is incorrect because it is awkward and redundant: "served" is used twice.

290. **Answer choice (a) is the correct answer.** Gecko's ability to change colors and blend in with their environment could help them survive because it could help them stay out of sight from predators.

291. **Answer choice (c) is the correct answer.** Answer choices (a) and (d) are incorrect because they are awkward: it is awkward to say "bill drink" or "bill is drinking" after saying "a cup of coffee." Answer choice (b) is incorrect because it is missing a main verb.

292. **Answer choice (d) is the correct answer.** None of the answer choices discuss the lasting effects of slavery. Answer choice (a) talks about how slavery ended, answer choice (b) talks about an experience slaves had to endure during slavery, and answer choice (c) discusses how some slaves escaped.

293. **Answer choice (b) is the correct answer.** Answer choices (a), (c), and (d) are awkward. It is awkward to say "is what he needs," and "six classes is necessary for him." In answer choice (d), it is awkward to put "which is needed to graduate" after the phrase "he has to take six classes."

294. **Answer choice (d) is the correct answer.** The main point of the paragraph is to discuss the reason for the Great Depression and how detrimental it was. The added sentence takes away from the main idea. The fact that Herbert Hoover was the president at the start of the Great Depression doesn't provide any information about the reasons for the Great Depression or the effects of the Great Depression.

295. **Answer choice (c) is the correct answer.** Sentence 3 says, "However, honesty is not just about telling the truth." Therefore, what follows sentence 3 should discuss what else is needed to be honest. The added sentence discusses that being honest requires being real with yourself and others about who you are and what you want, so the added sentence should be placed after sentence 3.

296. **Answer choice (b) is the correct answer.** The paragraph is about a family going to Lake Tahoe in the summer. Sentence 2 is irrelevant because it discusses what Lake Tahoe is like in the winter.

297. **Answer choice (a) is the correct answer.** While sentence 1 is about traffic, it is not a good topic sentence for the paragraph. The paragraph is talking about the reasons traffic can occur, and sentence 1 does not talk about the reasons for traffic.

298. **Answer choice (c) is the correct answer.** Sentence 3 starts with "Now the issue of bullying revolves around …" which implies that the sentence before should talk about what the issue of bullying used to revolve around. The added sentence says that the issue of bullying used to revolve around the question, "Is it necessary to stop bullying," but now it has evolved into more. Therefore, the added sentence should be placed before sentence 3.