Section II. Mathematics

You will have 54 minutes to complete 36 questions.

1. What is 4 + 5 + 12 + 9?

    A. 20

    B. 30

    C. 40

    D. 50

2. What is the difference between two equal numbers?

    A. Negative

    B. Positive

    C. Zero

    D. Not enough information

3. What is the difference between two negative numbers?

    A. Negative number

    B. Positive number

    C. Zero

    D. Not enough information

4. Evaluate the expression -3×5.

A. –15

B. –2

C. 2

D. 15

5. Which statement about multiplication and division is true?

A. The product of the quotient and the dividend is the divisor.

B. The product of the dividend and the divisor is the quotient.

C. The product of the quotient and the divisor is the dividend.

D. None of the above.

6. Find the area in square centimeters of a circle with a diameter of 16 centimeters. Use 3.14 for π.

A. 25.12

B. 50.24

C. 100.48

D. 200.96

7. Half of a circular garden with a radius of 11.5 feet needs weeding. Find the area in square feet that needs weeding. Round to the nearest hundredth. Use 3.14 for π.

A. 207.64

B. 415.27

C. 519.08

D. 726.73

8. The area of a circle is 18 square inches. Find the circumference of the circle to the nearest tenth of an inch. Use 3.14 for π.

A. 2.4

B. 7.5

C. 15.1

D. 30.1

9. Which decimal is the least?

A. 2.22

B. 2.02

C. 2.002

D. 2.2

10. Write 290% as a fraction.

A. $2\frac{9}{200}$

B. $2\frac{9}{100}$

C. $2\frac{9}{20}$

D. $2\frac{9}{10}$

11. Solve the inequality for the unknown, $\frac{2}{3}x-4 \le \frac{4}{5}x + 2$.

A. $x \le -45$

B. $x \ge -45$

C. $x \le 90$

D. $x \ge 90$

12. Solve the equation for the unknown, $\frac{x}{2} + 5 = 8$.

A. $\frac{3}{2}$

B. $\frac{5}{2}$

C. 6

D. 26

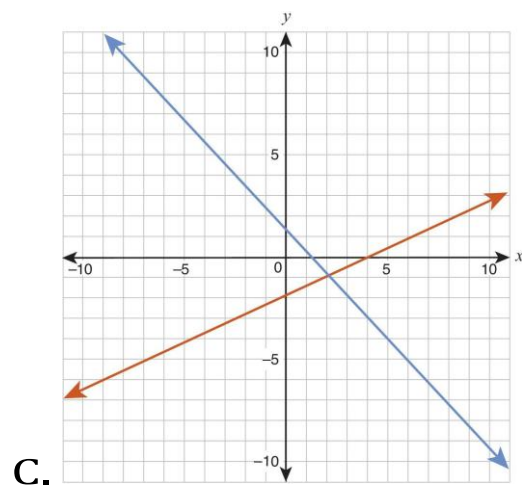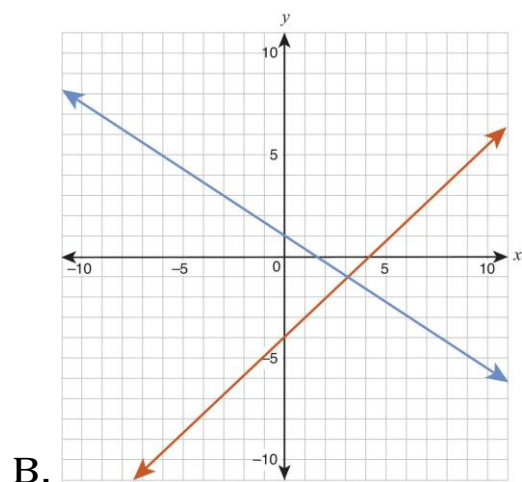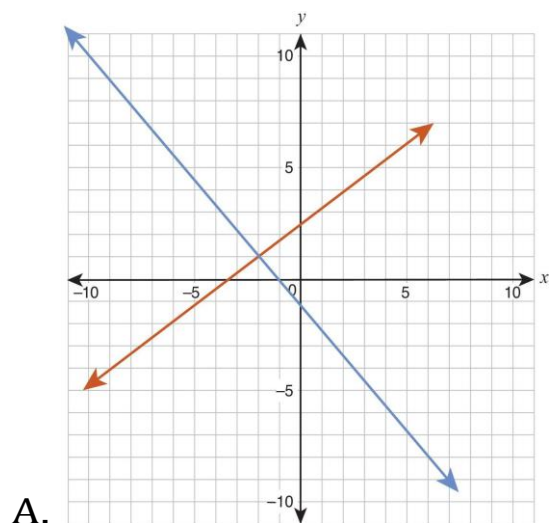**13. Solve the system of equations, $\begin{matrix} y = 2x \\ x^2 + y^2 = 9 \end{matrix}$.**
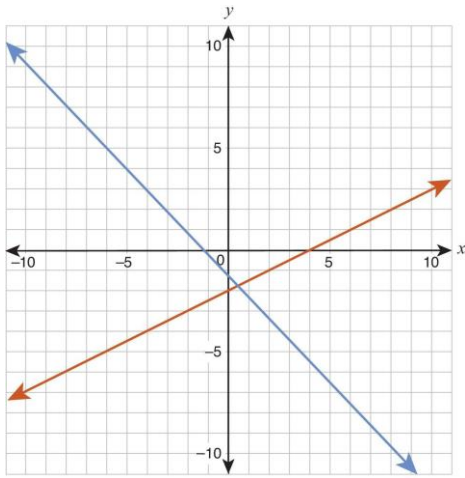
A. (1.8, 3.6) and (-1.8, -3.6)

B. (1.8, -3.6) and (-1.8, 3.6)

C. (1.3, 2.6) and (-1.3, -2.6)

D. (-1.3, 2.6) and (1.3, -2.6)

14. Solve the system of equations by graphing, $\begin{array}{l} 6x + 5y = -7 \\ 2x{-}4y = -8 \end{array}$.

A.

B.

C.

D.

15. **Find the mean for the data set 16, 18, 17, 15, 19, 14, 12, 11, 10, 16, 18, and 17.**
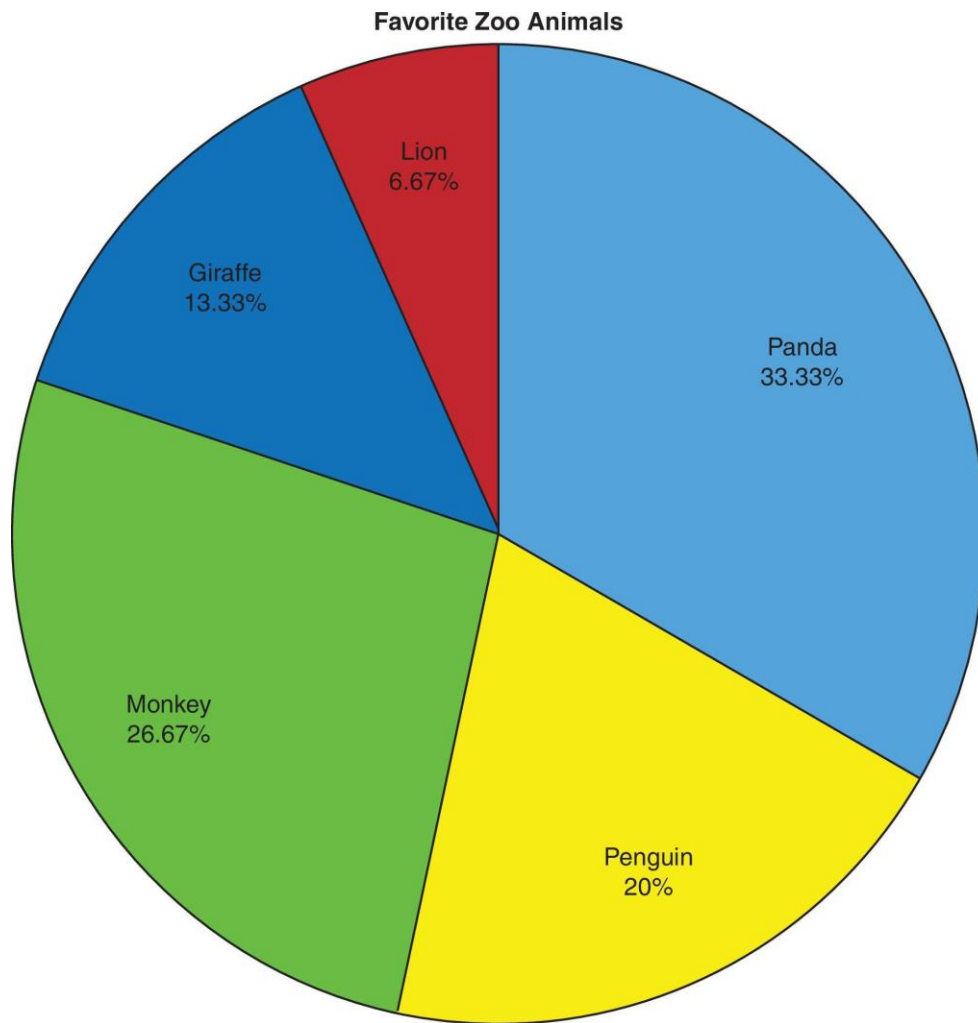
A. 14.25

B. 15.25

C. 16

D. 17

16. **Elementary school students were surveyed about their favorite animals at a zoo. The circle graph shows the results. Which statement is true for the circle graph?**

Favorite Zoo Animals

A. The penguins were the second-favorite animals.

B. No group of animals makes up one-third of the graph.

C. Sixty percent of the students like pandas and monkeys.

D. Fifty percent of the students like giraffes, lions, and penguins.

17. **The circle graph shows the daily activities of a student. Which statement is true for the circle graph?**

Daily Activities
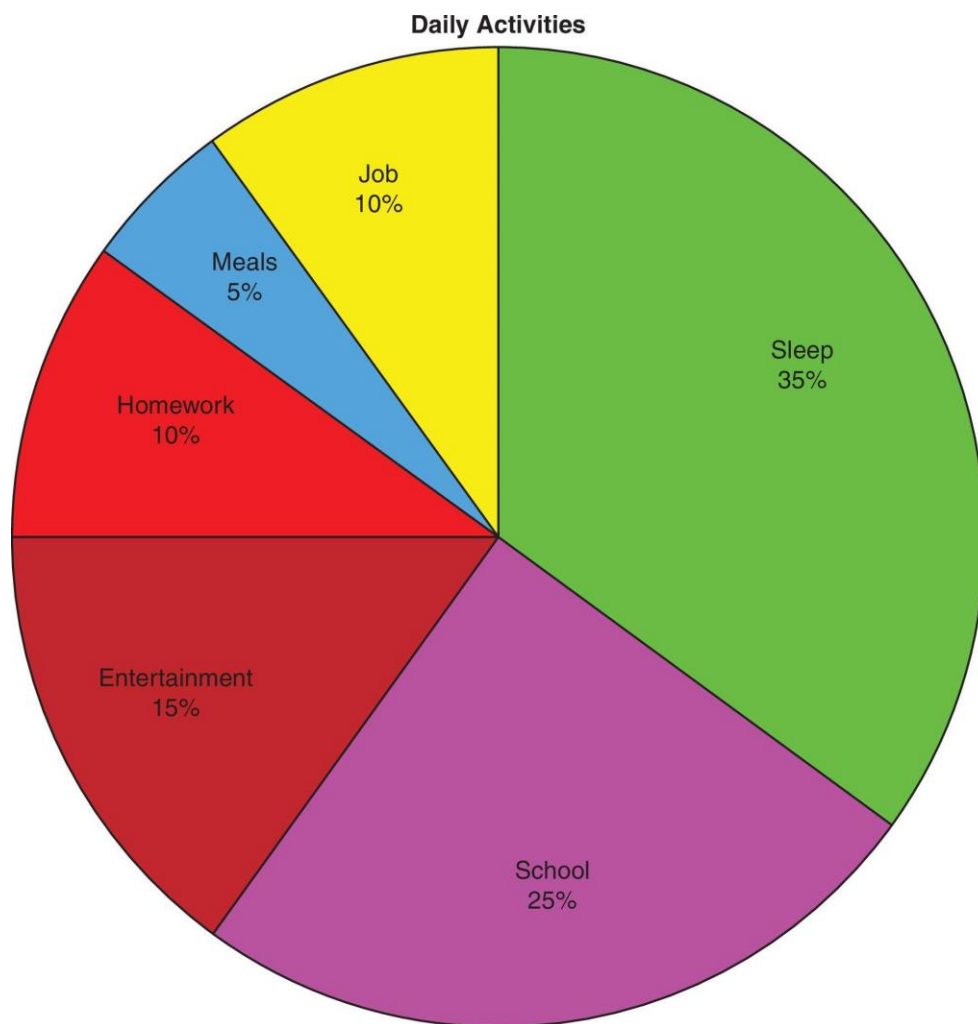
A. Homework and job take up the least time.

B. The amount of time in school is the largest category.

C. Other categories besides sleep and school are over 50% of the time.

D. The entertainment and homework total is the same as the amount of time in school.

18. **Multiply** $3\frac{1}{5} \times \frac{5}{8}$**.**

A. 1

B. 2

C. 3

D. 4

19. **Divide** $\frac{3}{14} \div 3.$

A. $\frac{1}{42}$

B. $\frac{1}{14}$

C. $\frac{1}{3}$

D. $\frac{9}{14}$

20. **Multiply** $\frac{2}{5} \times 3.$

A. $\frac{2}{15}$

B. $1\frac{1}{5}$

C. $2\frac{3}{5}$

D. $3\frac{2}{5}$

21. **Multiply,** $(5x-3)(5x+3).$

A. $25x^2-9$

B. $25x^2+9$

C. $25x^2+30x-9$

D. $25x^2 + 30x + 9$

22. **Apply the polynomial identity to rewrite $16x^2 - 121$.**

A. $(x + 11)(x-11)$

B. $(x-11)^2$

C. $(4x + 11)(4x-11)$

D. $(4x-11)^2$

23. **Perform the operation, $\left(3y^2 + 4y\right) - \left(5y^3 - 2y^2 + 3\right)$.**

A. $-5y^3 + y^2 + 4y-3$

B. $-5y^3 + 5y^2 + 4y + 3$

C. $-5y^3 + y^2 + 4y + 3$

D. $-5y^3 + 5y^2 + 4y-3$

24. **Simplify $\left(\dfrac{x^0}{y^{-2}}\right)^2$.**

A. $\dfrac{1}{y^4}$

B. $\dfrac{x}{y^4}$

C. y^4

D. $x^4 y^4$

25. **One cell has a diameter of 5×10^{-8} meter, and another cell has a diameter of 6×10^{-9} meter. How many times larger is the first cell?**

A. 2

B. 4

C. 8

D. 16

26. **Solve $x^2 = 169$.**

A. −10, 10

B. −11, 11

C. −12, 12

D. −13, 13

27. **Which proportion yields a number for the unknown that is different from the others?**

A. $\frac{13}{75} = \frac{158}{?}$

B. $\frac{75}{13} = \frac{?}{158}$

C. $\frac{158}{?} = \frac{13}{75}$

D. $\frac{75}{13} = \frac{158}{?}$

28. **How much hydrochloric acid (HCl) is necessary to make 2.5 liters of a 5:1 solution of water (in liters) to HCl (in grams)?**

A. 0.5 grams

B. 2 grams

C. 5 grams

D. 12.5 grams

29. **If a tree grows an average of 4.2 inches in a day, what is the rate of change in its height per month? Assume a month is 30 days.**

   A. 0.14 inches per month

   B. 4.2 inches per month

   C. 34.2 inches per month

   D. 126 inches per month

30. **Three vertices of a parallelogram are** $(8,5),(-2,5),(-1,1)$. **What is the fourth coordinate?**

   A. $(9, \ 1)$

   B. $(8, \ 1)$

   C. $(9,-1)$

   D. $(8, \ -1)$

31. **A sign stating "Do Not Enter" is in the shape of a square with side lengths of 75 centimeters. What is the area in square centimeters?**

   A. 150

   B. 300

C. 5,325

D. 5,625

32. **Jayden rides his bike for $2\frac{3}{4}$ miles. He takes a break and rides another $3\frac{1}{3}$ miles. How many miles does he ride?**

A. $5\frac{1}{12}$

B. $5\frac{4}{7}$

C. $6\frac{1}{12}$

D. $6\frac{4}{7}$

33. **Eric buys $2\frac{2}{5}$ pounds of apples each week for four weeks. How many total pounds does he buy?**

A. $7\frac{3}{5}$

B. $8\frac{2}{5}$

C. $9\frac{3}{5}$

D. $10\frac{2}{5}$

34. **A piece of wood that is $5\frac{2}{3}$ feet long has $1\frac{1}{4}$ feet cut off. How many feet of wood remain?**

A. $4\frac{1}{12}$

B. $4\frac{5}{12}$

C. $6\frac{1}{12}$

D. $6\frac{5}{12}$

35. Convert 1,000 fluid ounces to gallons.

A. 7.8125 gallons

B. 15.625 gallons

C. 31.25 gallons

D. 62.5 gallons

36. Convert 147 liters to kiloliters.

A. 0.147 kiloliters

B. 1.47 kiloliters

C. 1,470 kiloliters

D. 147,000 kiloliters

Section III. Science

You have 63 minutes to complete 53 questions.

1. **A person wakes up with a fever. The body begins its response to locate the origin of the problem and fix it. What type of feedback mechanism is this?**

   A. Equal

   B. Negative

   C. Neutral

   D. Positive

2. **What are the subdivisions of the dorsal cavity, located in the back of the human body?**

   A. Cranial and spinal

   B. Dorsal and ventral

   C. Lateral and proximal

   D. Inferior and superior

3. **When a patient is positioned in a_____position, access to the stomach is possible.**

   A. medial

   B. prone

C. superficial

D. supine

4. **Which is the correct order of formed elements in blood from smallest to largest cell size?**

    A. Erythrocytes, thrombocytes, and leukocytes

    B. Thrombocytes, leukocytes, and erythrocytes

    C. Thrombocytes, erythrocytes, and leukocytes

    D. Leukocytes, erythrocytes, and thrombocytes

5. **What is the purpose of an electrocardiogram?**

    A. Indicate the rate of blood flow

    B. Display the heart's rate and rhythm

    C. Identify a person's blood group type

    D. Determine cell type in a blood sample

6. **Which represents the correct order of airflow in the lungs?**

    A. Bronchi, trachea, alveoli, bronchioles

    B. Alveoli, bronchioles, bronchi, trachea

    C. Trachea, bronchi, bronchioles, alveoli

    D. Bronchioles, alveoli, trachea, bronchi

7. **What process does the respiratory system use to facilitate gas**

exchange between air and blood?

A. Diffusion

B. Exhalation

C. Inspiration

D. Ventilation

8. **What is the function of the pharynx?**

A. Allow food and air to pass into the body

B. Warm and moisten air during inhalation

C. Create a chest cavity at the base of the lungs

D. Provide structural support to the alveolar region

9. **After a person eats birthday cake, which of the following enzymes is needed to break down the sucrose in the cake?**

A. Lactase

B. Maltase

C. Peptidase

D. Sucrase

10. **The lining of the stomach is covered with rugae. What is a benefit of this?**

A. Rugae increase the output of gastric juices.

B. Rugae increase the surface area of the stomach.

C. Rugae increase the permeability of the stomach walls.

D. Rugae increase the types of nutrients that can diffuse.

11. **What organ of the body compensates when a person's intake of vitamins decreases?**

A. Appendix

B. Liver

C. Pancreas

D. Stomach

12. **The cervix is located at the_____.**

A. top of the uterus

B. top of the ovaries

C. bottom of the vagina

D. bottom of the uterus

13. **The first trimester of gestation corresponds roughly to which developmental process?**

A. Embryogenesis

B. Fertilization

C. Meiosis

D. Menstruation

14. **How does the developing fetus primarily eliminate metabolic wastes?**

    A. A developing fetus does not produce metabolic wastes.

    B. Fetal waste is excreted as feces, which pass into the mother's anus.

    C. Fetal waste is passed down the umbilical cord to the mother's circulatory system.

    D. Fetal waste is passed down the umbilical cord and leaves the mother's body via the vagina.

15. **Which of the following correctly orders the route of a fetus during childbirth?**

    A. Uterus cervix vagina

    B. Cervix uterus vagina

    C. Uterus vas deferens vagina

    D. Ovary Fallopian tube uterus

16. **A doctor diagnoses a patient with an impaired posterior pituitary gland. Which of the following symptoms related to kidney function does the patient display?**

    A. Thirst

B. Tiredness

C. Weight gain

D. Concentrated urine

17. **Urine is formed**

A. after fluid reaches the bladder.

B. when fluid fills the collecting duct.

C. before blood enters the glomerulus.

D. during fluid transport to the urethra.

18. **At which of the following ages would ossification most likely take place to replace cartilage at the growth plate?**

A. 5

B. 18

C. 42

D. 91

19. **The lungs are protected by the_____.**

A. femur

B. ribcage

C. scapula

D. skull

20. **Which muscle causes a joint to bend?**

A. Cardiac

B. Extension

C. Flexor

D. Smooth

21. **What substance is required to drive the slide filament process?**

A. ATP

B. Hormone

C. Potassium

D. Water

22. **The hair_____is not attached to the follicle.**

A. bulb

B. root

C. shaft

D. strand

23. **The hypodermis is primarily composed of_____tissue.**

A. adipose

B. connective

C. epithelial

D. muscle

24. **The hair bulb contains actively growing_____cells.**

A. basal

B. epidermal

C. epithelial

D. merkel

25. **What is a major structure of the limbic system?**

A. Brainstem

B. Spinal cord

C. Hypothalamus

D. Cerebral cortex

26. **Which of the following is a characteristic of an interneuron?**

A. Forms neural circuits

B. Interacts with effectors

C. Sends impulses to the CNS

D. Functions as an efferent nerve cell

27. **A physician prescribes a drug to help control a person's anxiety attacks. This drug most likely targets the**

A. amygdala.

B. parietal lobe.

C. hypothalamus.

D. sensory neuron.

28. **Some intercellular chemical signals diffuse across cell membranes and bind to intracellular receptors. What are the two factors that enable this to occur?**

A. They are small and soluble.

B. They are large and soluble.

C. They are small and insoluble.

D. They are large and insoluble.

29. **Which of the following hormones would cause skin color to become darker?**

A. Follicle-stimulating

B. Growth-stimulating

C. Thyroid-stimulating

D. Melanocyte-stimulating

30. **Not all cells in the pancreas secrete insulin because of the hormone somatostatin, which inhibits the release of insulin by all cells. What type of intercellular chemical signal does this illustrate?**

A. Autocrine

B. Neuromodulator

C. Paracrine

D. Pheromone

31. **An extensive network of blood vessels supplies the endocrine glands. Why is this necessary?**

A. Because glands filter waste from the blood

B. Because the glands empty directly into the blood

C. Because blood empties into the endocrine system

D. Because blood filters waste from the endocrine glands

32. **How do the killer T cells recognize infected cells?**

A. The B cells flag the infected cells with amino acids.

B. Tiny bits of the virus's RNA are left around the cell.

C. Macrophages show up to help consume the infected cell.

D. The T cells have receptors that recognize the proteins the virus left

on the surface of the cell.

33. **Which type of immunity does the MMR vaccine provide?**

    A. Artificial/active

    B. Artificial/passive

    C. Natural/active

    D. Natural/passive

34. **An intensive vaccination program led to the elimination of which deadly disease?**

    A. AIDS

    B. Smallpox

    C. Diabetes I

    D. Rheumatoid arthritis

35. **What is a benefit of a taxonomic system?**

    A. Researchers can describe how living things behave.

    B. Researchers can develop names for new organisms.

    C. Living things can be distinguished from nonliving things.

    D. Living things can be classified based on their molecular traits.

36. **A study was performed to evaluate which type of road salt deiced a road most quickly. What is the independent variable?**

A. Deicing time period

B. Road used for deicing

C. Type of road salt used

D. Amount of road salt used

37. **Which statement confirms that the cell membrane is selectively permeable?**

A. Receptors are found on a cell's surface.

B. Cells communicate with each other using cell signals.

C. Environmental changes can cause a cell to expand or shrink.

D. Sodium ions must travel through ion channels to enter the cell.

38. **Which structure do cells rely on for movement?**

A. Flagellum

B. Microtubule

C. Pili

D. Vesicle

39. **What is the most basic unit of structure in living things?**

A. Cell

B. Organelle

C. Oxygen

D. Pigment

40. **If a biochemist isolates a large amount of pyruvate, which part of the cell is he working with?**

A. Chloroplasts

B. Cytoplasm

C. Mitochondria

D. Nucleus

41. **Which gives the correct order of cellular respiration?**

A. Glycolysis, Acetyl-CoA, Citric Acid Cycle, Electron Transport Chain

B. Citric Acid Cycle, Glycolysis, Acetyl-CoA, Electron Transport Chain

C. Glycolysis, Acetyl-CoA, Electron Transport Chain, Citric Acid Cycle

D. Glycolysis, Citric Acid Cycle, Electron Transport Chain, Acetyl-CoA

42. **During which phase of meiosis do chiasmata structures form?**

A. Prophase I

B. Prophase II

C. Metaphase I

D. Metaphase II

43. **A_____is a rod-shaped structure that forms when a single DNA molecule and its associated proteins coil tightly before cell division.**

    A. centromere

    B. chromatid

    C. chromosome

    D. gene

44. **Which of the following is the base that will bind with cytosine?**

    A. Adenine

    B. Cytosine

    C. Guanine

    D. Thymine

45. **Which term is used interchangeably with negative variation?**

    A. Non-correlation

    B. Direct correlation

    C. Inverse correlation

    D. Positive correlation

46. **A fish in a large fish tank is fed 5 ounces of food once a day. The**

same type of fish in a second tank is fed 10 ounces of food each day. The same type of fish in a third tank is fed 2 ounces of food four times a day. This study lasts for a four-week period where fish weight is measured weekly. What is the dependent variable?

A. Weight of the fish

B. Type of food used

C. Number of fish tanks

D. Frequency of feedings

47. **Five tropical plants are kept at varying humidity levels in a greenhouse for three months. One plant is left outside in normal conditions. Plant height is measured weekly. What is the control of the experiment?**

A. Plant height for each tropical plant

B. The plant left outside in normal conditions

C. Humidity level readings in the greenhouse

D. Amount of time used to study plant height

48. **A neutral atom of which element has 2 electrons in the first shell and 6 electrons in the second shell of the electron cloud?**

A. Beryllium

B. Carbon

C. Helium

D. Oxygen

49. **An atom has 17 protons, 20 neutrons, and 17 electrons. What is its mass, in amu?**

A. 17

B. 20

C. 37

D. 54

50. **A neutral atom of aluminum has 13 electrons. How many electrons can be found in each shell in the electron cloud?**

A. 6 in the first shell, 7 in the second shell

B. 2 in the first shell, 11 in the second shell

C. 2 in the first shell, 8 in the second shell, 3 in the third shell

D. 3 in the first shell, 5 in the second shell, 5 in the third shell

51. **How many kilograms are in 1,800 grams?**

A. 0.18

B. 1.8

C. 18

D. 180

52. **A scientist wants to measure how far a person can run in 30 minutes. Which of the following units should she use to record this measurement as a small number?**

A. Gigameters

B. Kilometers

C. Megameters

D. Terameters

53. **What is the temperature of 35°C in Kelvin?**

A. 220

B. 238

C. 308

D. 345

Section IV. English and Language Usage

You have 28 minutes to complete 28 questions.

1. **What is the correct plural of** *century***?**

   A. Centurys

   B. Centures

   C. Centuries

   D. Centuryies

2. **Which word(s) in the following sentence should be capitalized?**

   she asked, "do you like indian food?"

   A. she and do

   B. do and indian

   C. she and indian

   D. she, do, and indian

3. **What is missing from the following sentence?**

   He asked, When is the assignment due?

   A. There should be quotation marks.

   B. There needs to be a semicolon after *asked*.

   C. There should be a comma after *assignment*.

D. Nothing is missing.

4. **Which is the correct plural form of the noun class?**

   A. Class

   B. Class'

   C. Class's

   D. Classes

5. **Which pronoun would <u>not</u> work in the following sentence?**

   I asked_____colleague to bring it to you.

   A. my

   B. our

   C. your

   D. whose

6. **Select the noun that the underlined adjectives describe.**

   Two weeks after his surgery, Henry felt <u>strong</u> and <u>healthy</u>.

   A. weeks

   B. his

   C. surgery

D. Henry

7. **Select the book title that does <u>not</u> contain a preposition.**

   A. *The Man in the Brown Suit*

   B. *The Secret of Chimneys*

   C. *Murder on the Orient Express*

   D. *And Then There Were None*

8. **What verb tense are the underlined words in the following sentence?**

   The doctor prescribed medicine after my son <u>had been</u> sick for four days.

   A. Past perfect

   B. Present perfect

   C. Past progressive

   D. Present progressive

9. **Select the subject with which the underlined verb must agree.**

   Everyone I know <u>has</u> the day off, but my boss wants me to work.

   A. Everyone

   B. I

   C. day

   D. boss

10. **Select the correct verb to complete the following sentence.**

   The girls on the team____excited to play in the championships.

   A. is

   B. am

   C. are

   D. ares

11. **Which of the following uses a conjunction to combine the sentences below so the focus is on puppies requiring a lot of work?**

   Puppies are fun-loving animals. They do require a lot of work.

   A. Puppies are fun-loving animals; they do require a lot of work.

   B. Puppies are fun-loving animals, so they do require a lot of work.

   C. Since puppies are fun-loving animals they do require a lot of work.

   D. Although puppies are fun-loving animals, they do require a lot of work.

12. **Which of the following is an example of a complex sentence?**

   A. Tabitha tried rock climbing, having a fear of heights.

   B. Tabitha tried rock climbing; having a fear of heights.

   C. Tabitha tried rock climbing and having a fear of heights.

   D. Tabitha tried rock climbing despite having a fear of heights.

13. **How would you connect the following clauses?**

He ate a lot on vacation.

He did not gain any weight.

A. He ate a lot on vacation if he did not gain any weight.

B. He ate a lot on vacation, but he did not gain any weight.

C. He ate a lot on vacation since he did not gain any weight.

D. He ate a lot on vacation because he did not gain any weight.

14. **Identify the type of clause.**

I ate, and he drank.

A. Coordinate clause

B. Dependent clause

C. Subordinate clause

D. Independent clause

15. **Fill in the blank with the correct subordinating conjunction.**

_____the class was difficult, Allison passed with flying colors.

A. If

B. Since

C. Because

D. Although

16. **Which of the following sentences uses the MOST formal language?**

   A. I can't come to your party.

   B. I will be unable to come to your party.

   C. I won't be able to go to your party.

   D. I can't go to your party.

17. **In which of the following situations would it be best to use informal language?**

   A. In a seminar

   B. Writing a postcard

   C. Talking to your boss

   D. Participating in a professional conference

18. **In which of the following situations would you use formal language?**

   A. Texting a friend

   B. A family reunion

   C. Skyping your grandparents

   D. At a Parent-Teacher meeting

19. **Which of the following root words means <u>far</u>?**

   A. tele

   B. trans

C. post

D. ante

20. **What is the best definition of the word <u>translucent</u>?**

A. Blocking all light

B. Blinding with light

C. Giving off colorful light

D. Letting some light through

21. **<u>Monochromatic</u> most nearly means**

A. having one color

B. having many parts

C. having a lot of time

D. having too much heat

22. **What is the best definition of the word <u>veritable</u>?**

A. Noble

B. Genuine

C. Forceful

D. Exaggerated

23. **Which of the following prefixes means <u>with</u>?**

A. bio-

B. per-

C. con-

D. trans-

24. **Select the word from the following sentence that has more than one meaning.**

Javier was overjoyed when he finally finished his application for college.

A. Overjoyed

B. Finally

C. Application

D. College

25. **Select the correct definition of the underlined word having multiple meanings in the sentence.**

Natalie's fingers were calloused after practicing her <u>bass</u>.

A. Kind of fish

B. Low and deep sound

C. Lowest male singing voice

D. A guitar with four strings that makes low sounds

26. **Select the context clue from the following sentence that helps you define the multiple meaning word <u>formula</u>.**

The mother gave her baby his <u>formula</u> after he woke up from his nap in the car.

A. "mother"

B. "baby"

C. "nap"

D. "car"

27. **Select the meaning of the underlined word in the sentence based on the context clues.**

If you wake up outside in your pajamas in the middle of the night, you may be a <u>somnambulist</u>.

A. Explorer

B. Magician

C. Insomniac

D. Sleepwalker

28. **Select the context clue from the following sentence that helps you define the word <u>pungent</u>.**

The <u>pungent</u> odor in the room made everyone's eyes tear for a few

minutes.

A. "odor"

B. "room"

C. "made"

D. "tear"

TEAS Practice Exam 6

ANSWER KEY WITH EXPLANATORY ANSWERS

Section I. Reading

1. **B.** The main idea of the sentence is how kindergarten has changed. **See Lesson: Main Ideas, Topic Sentences, and Supporting Details.**

2. **A.** The sentence conveys information about today's kindergartens being more like first grade classrooms from thirty years ago. This makes it most likely to fit into a persuasive paragraph about kindergarten not being developmentally appropriate for children. **See Lesson: Main Ideas, Topic Sentences, and Supporting Details.**

3. **C.** If the sentence were a topic sentence, its supporting details would likely share information to develop the idea that kindergarten today looks very different from kindergarten years ago. **See Lesson: Main Ideas, Topic Sentences, and Supporting Details.**

4. **D.** A summary is a restatement of the main ideas of a text. Summaries also use different words to restate these main ideas. **See Lesson: Summarizing Text and Using Text Features**.

5. **A.** A diagram presents a picture with labels that show the parts of an object or functions of a mechanism. This would be the best graphic to support the paragraph mentioned. **See Lesson: Summarizing Text and Using Text Features.**

6. **D.** A pie chart is useful for representing all of something – in this case a large donation made to a charity – and the percentage values of its parts. **See Lesson: Summarizing Text and Using Text Features.**

7. **A.** The main point is the unifying idea. Here, that is the argument that there is a need for diverse superheroes. **See Lesson: The Writing Process.**

8. **C.** The author of this outline has not yet figured out how to grab the attention and set up the topic in the introductory paragraph. The introduction in this outline contains only the thesis statement. **See Lesson: The Writing Process.**

9. **A.** The sentence about the world needing more heroes is a surprising statement that could grab the reader's attention at the beginning of the essay. **See Lesson: The Writing Process.**

10. **C.** A new body paragraph needs to say something new, not just restate the points already made. However, it must also stay focused on the main point about superheroes, not veer off onto a related side topic. **See Lesson: The Writing Process.**

11. **C.** This outline contains information from research, and the writer has made a note of where the quotations came from. This will help later when it is time to create citations. **See Lesson: The Writing Process.**

12. **A.** Prewriting takes place before the writing. Revising is the process of making major changes to the content and structure of a draft after it is

written. **See Lesson: The Writing Process.**

13. **C.** Objects uncovered at an archeological dig are artifacts. They are also things, but *thing* is even less precise than *object.* **See Lesson: Essay Revision and Transitions.**

14. **A.** Choosing more precise language often makes writing stronger. However, you should be aware of your audience's likely needs. Small children might not know the word *artifact,* so it's best to go with a simpler choice (unless you're actively teaching archeological terms). **See Lesson: Essay Revision and Transitions.**

15. **C.** Coherent writing is logical and consistent, so that readers can follow the flow of ideas. **See Lesson: Essay Revision and Transitions.**

16. **B.** The phrase *until recently* and the word *now* connect ideas in these sentences by showing when people believed the ideas expressed. **See Lesson: Essay Revision and Transitions.**

17. **C.** Wordy phrases should generally be avoided if it is possible to convey the same idea with fewer words. The phrase "due to the fact that" means *because,* and the phrase "on the other hand" means *however.* **See Lesson: Essay Revision and Transitions.**

18. **B.** The author of this passage is reporting on a controversial issue with an objective or impartial tone. **See Lesson: Tone, Mood, and Transition Words.**

19. **C.** Dr. Hussein's words show that he cares deeply about the responsibility of his position. His tone could be described as earnest or concerned. **See Lesson: Tone, Mood, and Transition Words.**

20. **A.** Liz Goode is highly critical of embryonic research. Her tone could be described as harsh, scathing, or critical. **See Lesson: Tone, Mood, and Transition Words.**

21. **D.** The phrase "on the contrary" helps express a contrast. In other words, it introduces a juxtaposition of dissimilar ideas. **See Lesson: Tone, Mood, and Transition Words.**

22. **B.** Phrases like "for instance" help introduce examples in writing. **See Lesson: Tone, Mood, and Transition Words.**

23. **C.** A transition is a word or phrase that links ideas. The word "also" is a transition meant to introduce an additional idea on a topic. **See Lesson: Tone, Mood, and Transition Words.**

24. **D.** The sentences would be best served with an example transition and an addition transition. **See Lesson: Tone, Mood, and Transition Words.**

25. **A.** Transition words like "despite" express a contrast between ideas. **See Lesson: Tone, Mood, and Transition Words.**

26. **C.** If the article argues a point, it is meant to persuade. **See Lesson: Understanding Author's Purpose, Point of View, and Rhetorical**

Strategies.

27. **D.** Entertaining texts tell stories. This story is about one family's experience moving to a foreign country. **See Lesson: Understanding Author's Purpose, Point of View, and Rhetorical Strategies.**

28. **C.** This is a book review. Although it includes some information about the story, its primary purpose is to convince you to read it. This makes it a persuasive text. **See Lesson: Understanding Author's Purpose, Point of View, and Rhetorical Strategies.**

29. **C.** Most of the information despite the second paragraph is not verifiable, but the fact that the book chronicles the final years of Audrey Lacoste's life is a fact. **See Lesson: Understanding Author's Purpose, Point of View, and Rhetorical Strategies.**

30. **C.** This is a book review. The author includes details about Audrey Lacoste's life to personalize the idea of getting old by telling one individual's struggle. This is meant to appeal to the reader's emotions. **See Lesson: Understanding Author's Purpose, Point of View, and Rhetorical Strategies.**

31. **C.** The Rim Trail is the dotted line running generally north-south past the Lodge in the middle. Fairyland Point is in the far north, so a walk north on the trail would get you there. **See Lesson: Evaluating and Integrating Data.**

32. **D.** Inspiration Point is between Sunset Point and Bryce Point along

the Rim Trail. **See Lesson: Evaluating and Integrating Data.**

33.   **A.** The main road parallels the Rim Trail but only touches the northernmost and southernmost viewpoints; it does not touch Sunset Point. **See Lesson: Evaluating and Integrating Data.**

34.   **D.** The compass shows that the left-hand side of the page is west. The Visitor's Center is the westernmost labeled point on the map. **See Lesson: Evaluating and Integrating Data.**

35.   **A.** The legend explains what the solid and dotted lines represent. In this case, the dotted line is a trail and the solid line is a road. **See Lesson: Evaluating and Integrating Data.**

36.   **A.** If Carla wants to limit her calorie intake, she needs to know not only how many calories are in a serving of the foods and drinks she consumes, but also the number of servings per package or bottle. **See Lesson: Evaluating and Integrating Data.**

37.   **A.** The index tells which subtopics are covered on which pages of a book. **See Lesson: Evaluating and Integrating Data.**

38.   **A.** This first statement is an opinion since it reflects someone's beliefs about doctors. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

39.   **B.** This passage argues that teens and young adults spend too much time on social media. **See Lesson: Facts, Opinions, and Evaluating an**

Argument.

40.   **B.** Factual information is verifiable and not based on personal beliefs or feelings. The statistic about the number of teens who go online daily is a fact. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

41.   **A.** This statement takes a complex issue and presents it as if only two possible options are in play. This is an either/or fallacy. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

42.   **B.** This sentence makes an overgeneralization by claiming that online interactions are never as good as conversations with human beings. It is possible to imagine many exceptions to this statement. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

43.   **C.** The sentence in question is an example of circular reasoning. That is, it restates the argument in different words instead of providing evidence to back it up. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

44.   **A.** The phrase "too much" in this sentence reflects a judgment that is subject to interpretation. This indicates that the sentence reflects a belief rather than a fact. **See Lesson: Facts, Opinions, and Evaluating an Argument.**

45.   **A.** Adelia is attempting to call a pet, not a child. You can infer this because she calls Mr. Snuggles "vermin" and bangs on a bowl with a spoon to get his attention. **See Lesson: Understanding Primary Sources,**

Making Inferences, and Drawing Conclusions.

46. **B.** Adelia's bathrobe is not evidence that she is frustrated at Mr. Snuggles. **See Lesson: Understanding Primary Sources, Making Inferences, and Drawing Conclusions.**

47. **A.** Adelia tries repeatedly to call Mr. Snuggles, and when he does not come, she goes out to look for him. This implies that she does care about him, even if she is angry at him. **See Lesson: Understanding Primary Sources, Making Inferences, and Drawing Conclusions.**

48. **C.** The line about Raul and his plants does not explicitly say Adelia is babysitting Mr. Snuggles, but it suggests that she is caring for the pet for someone else. **See Lesson: Understanding Primary Sources, Making Inferences, and Drawing Conclusions.**

49. **B.** A biography of Anne Frank would be a historical or analytical account that added insight on the topic. This makes it a secondary source. **See Lesson: Understanding Primary Sources, Making Inferences, and Drawing Conclusions.**

50. **D.** Primary sources are written by people who witnessed the original creation or discovery of the information they present. This description does not apply to an encyclopedia entry. **See Lesson: Understanding Primary Sources, Making Inferences, and Drawing Conclusions.**

51. **C.** This passage is an explanation of phone habits in two eras. Although it uses a few time words, it does not describe narrative scenes.

It is an expository piece. **See Lesson: Types of Passages, Text Structures, Genre and Theme.**

52. **D.** The passage describes phone use in two eras, highlighting similarities and differences. This makes it a compare/contrast piece. **See Lesson: Types of Passages, Text Structures, Genre and Theme.**

53. **A**. This piece describes parts of both the author's life and another person's life, but it is not an autobiography or biography because it is not telling a story of either one. Rather, it is an essay—short description of a subject from the author's point of view. **See Lesson: Types of Passages, Text Structures, Genre and Theme.**

Section II. Mathematics

1. **B.** The correct solution is 30. Use the addition algorithm or a number line. Mental addition is also an option because the numbers are small. **See Lesson: Basic Addition and Subtraction.**

2. **C.** The correct solution is zero. Try a few examples: 6 – 6, 100 – 100, (–5) – (–5). All are equal to zero. **See Lesson: Basic Addition and Subtraction.**

3. **D.** The correct solution is not enough information. If you try a few examples, you will find that if the first number is less than the second, the difference is negative, but if the first number is greater than the second, the difference is positive. If the numbers are equal, the

difference is 0. The question therefore provides too little information to choose A, B, or C. **See Lesson: Basic Addition and Subtraction.**

4. **A.** When multiplying signed numbers, remember that the product of a negative and a positive is negative. Other than the sign, the process is the same as multiplying whole numbers. **See Lesson: Basic Multiplication and Division.**

5. **C.** Remember that division is the inverse of multiplication, so division and multiplication are related. Consider any example of division: multiplying the divisor and the quotient always yields the dividend. For example, 18 ÷ 6 = 3 and 3 × 6 = 18. **See Lesson: Basic Multiplication and Division.**

6. **D.** The correct solution is 200.96. The radius is 8 centimeters and $A = \pi r^2 \approx 3.14(8)^2 \approx 3.14(64) \approx 200.96$ square centimeters. **See Lesson: Circles.**

7. **A.** The correct solution is 207.64 because $A = \frac{1}{2}\pi r^2 \approx \frac{1}{2}(3.14)(11.5)^2 \approx \frac{1}{2}(3.14)(132.25) \approx 207.64$ square feet. **See Lesson: Circles.**

8. **C.** The correct solution is 15.1. $A = \pi r^2; 18 = 3.14 r^2; 5.73 = r^2; r \approx 2.4$ centimeters. $C = 2\pi r; C = 2(3.14)2.4 \approx 15.1$ centimeters. **See Lesson: Circles.**

9. **C.** The correct solution is 2.002 because 2.002 contains the smallest values in the tenths and hundredths places. **See Lesson: Decimals and Fractions.**

10. **D.** The correct answer is $2\frac{9}{10}$ because 290% as a fraction is $2\frac{90}{100} = 2\frac{9}{10}$.

See Lesson: Decimals and Fractions.

11. **B.** The correct solution is $x \geq -45$.

$10x{-}60 \leq 12x + 30$ $10x{-}60 \leq 12x + 30$	Multiply all terms by the least common denominator of 15 to eliminate the fractions.
$-2x{-}60 \leq 30$ $-2x{-}60 \leq 30$	Subtract $12x12x$ from both sides of the inequality.
$-2x \leq 90{-}2x \leq 90$	Add 60 to both sides of the inequality.
$x \geq -45x \geq -45$	Divide both sides of the inequality by -2.

See Lesson: Equations with One Variable.

12. **C.** The correct solution is 6.

$\frac{x}{2} = 3 = 3$	Subtract 5 from both sides of the equation.
$x = 6x = 6$	Multiply both sides of the equation by 2.

See Lesson: Equations with One Variable.

13. **C.** The correct solutions are (1.3, 2.6) and (-1.3, -2.6).

$x^2 + (2x)^2 = 9 + = 9$	Substitute $2\,_xx$ in for y in the second equation.
$x^2 + 4x^2 = 9 + 4 = 9$	Apply the exponent.
$5x^2 = 95 = 9$	Combine like terms on the left side of the equation.

$x^2 = 1.8 = 1.8$ Divide both sides of the equation by 5.

$x = \pm 1.3x = \pm 1.3$ Apply the square root to both sides of the equation.

$y = 2(1.3) = 2.6y = 2 = 2.6$ Substitute 1.3 in the first equation and multiply.

$y = 2(-1.3) = -2.6y = 2 = -2.6$ Substitute -1.3 in the first equation and multiply.

See Lesson: Equations with Two Variables.

14. **A.** The correct graph has the two lines intersect at (-2, 1). **See Lesson: Equations with Two Variables.**

15. **B.** The correct solution is 15.25. The sum of all items is 183, and 183 and divided by 12 gives a mean of 15.25. **See Lesson: Interpreting Graphics.**

16. **C.** The correct solution is that 60 percent of the students like pandas and monkeys: 33.33% plus 26.67% equals 60%. **See Lesson: Interpreting Graphics.**

17. **D.** The correct solution is the entertainment and homework total is the same as the amount of time in school because the sum of entertainment and homework is 25%. **See Lesson: Interpreting Graphics.**

18. **B.** The correct solution is 2 because $\frac{16}{5} \times \frac{5}{8} = \frac{80}{40} = 2$. **See Lesson: Multiplication and Division of Fractions.**

19. **B.** The correct answer is $\frac{1}{14}$ because $\frac{3}{14} \times \frac{1}{3} = \frac{3}{42} = \frac{1}{14}$. **See Lesson: Multiplication and Division of Fractions.**

20. **B.** The correct solution is $1\frac{1}{5}$ because $\frac{2}{5} \times \frac{3}{1} = \frac{6}{5} = 1\frac{1}{5}$. **See Lesson: Multiplication and Division of Fractions.**

21. **A.** The correct solution is $25x^2 - 9$.

$$(5x-3)(5x+3) = 5x(5x+3)-3(5x+3) = 25x^2 + 15x-15x-9 = 25x^2-9$$

See Lesson: Polynomials.

22. **C.** The correct solution is $(4x+11)(4x-11)$. The expression $16x^2 - 121$ is rewritten as $(4x+11)(4x-11)$ because the value of a is $4x$ and the value of b is 11. **See Lesson: Polynomials.**

23. **D.** The correct solution is $-5y^3 + 5y^2 + 4y - 3$.

$$\left(3y^2 + 4y\right) - \left(5y^3 - 2y^2 + 3\right) = \left(3y^2 + 4y\right) + \left(-5y^3 + 2y^2 - 3\right) = -5y^3 + \left(3y^2 + 2y^2\right) + 4y - 3 = -5y^3 + 5y^2 + 4y - 3$$

See Lesson: Polynomials.

24. **C.** The correct solution is y^4 because $\left(\frac{x^0}{y^{-2}}\right)^2 = \frac{x^{0\times2}}{y^{-2\times2}} = \frac{x^0}{y^{-4}} = \frac{1}{y^{-4}} = y^4$. **See Lesson: Powers, Exponents, Roots, and Radicals.**

25. **C.** The correct solution is 8 because 5×10^{-8} is 0.00000005 and 6×10^{-9} is 0.000000006. So, the first cell is about 8 times larger. **See Lesson: Powers, Exponents, Roots, and Radicals.**

26. **D.** The correct solution is $-$ -13, 13 because the square root of 169 is 13. The values of -13 and 13 make the equation true. **See Lesson: Powers,**

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Exponents, Roots, and Radicals.

27. D. Although solving each proportion is one approach, the easiest approach is to compare them as they are. The proportions in answers A and B yield the same number for the unknown because they keep the same numbers in either the numerators or the denominators. Answer C just reverses the order of the equation in answer A, which does not yield a different number for the unknown. Answer D flips one fraction without flipping the other, which changes the proportion. **See Lesson: Ratios, Proportions, and Percentages.**

28. A. The amount of HCl necessary is 0.5 grams. The 5:1 solution in this case means 5 liters of water for every 1 gram of HCl. The proportion is

$$\frac{1 gram HCL}{5 liters water} = \frac{?}{2.5 liters water} =$$

Because 2.5 liters $\div\div$ 5 liters $= \frac{1}{2}$, multiply 1 gram HCl by $\frac{1}{2}$ to get 0.5 grams of HCl. **See Lesson: Ratios, Proportions, and Percentages.**

29. D. The rate of change is 126 inches per month. One approach is to set up a proportion.

$$\frac{1 day}{4.2 inches} = \frac{30 days}{?} =$$

Since 1 month is equivalent to 30 days, multiply the rate of change per day by 30 to get the rate of change per month. 4.2 inches multiplied by 30 is 126 inches. Thus, the growth rate is 126 inches per month. **See Lesson: Ratios, Proportions, and Percentages.**

30. A. The correct solution is $(9, \ 1)$ because this point shows a parallelogram with a base length of 10 units. **See Lesson: Similarity, Right Triangles, and Trigonometry.**

31. D. The correct solution is 5,625. Substitute the values into the formula and simplify using the order of operations, $A = s^2 = 75^2 = 5{,}625$ square centimeters. **See Lesson: Similarity, Right Triangles, and Trigonometry.**

32. C. The correct solution is $6\frac{1}{12}$ because $2\frac{3}{4} + 3\frac{1}{3} = 2\frac{9}{12} + 3\frac{4}{12} = 5\frac{13}{12} = 6\frac{1}{12}$ miles. **See Lesson: Solving Real World Mathematical Problems.**

33. C. The correct solution is $9\frac{3}{5}$ because $2\frac{2}{5} \times 4 = \frac{12}{5} \times \frac{4}{1} = \frac{48}{5} = 9\frac{3}{5}$ pounds of apples. **See Lesson: Solving Real World Mathematical Problems.**

34. B. The correct solution is $4\frac{5}{12}$ because $5\frac{2}{3} - 1\frac{1}{4} = 5\frac{8}{12} - 1\frac{3}{12} = 4\frac{5}{12}$ feet. **See Lesson: Solving Real World Mathematical Problems.**

35. A. The correct solution is 7.8125 gallons.

$$1{,}000\, floz \times \frac{1pt}{16floz} \times \frac{1qt}{2pt} \times \frac{1gal}{4qt} = \frac{1{,}000}{128} = 7.8125\, gal$$ 1,000 fl oz × × × = = 7.8125 gal. **See Lesson: Standards of Measure.**

36. A. The correct solution is 0.147 kiloliters.

$$147L \times \frac{1kL}{1{,}000L} = \frac{147}{1{,}000} = 0.147kL.$$ 147 L × = = 0.147 kL. **See Lesson: Standards of Measure.**

Section III. Science

1. B. This is a negative feedback mechanism because its goal is to readjust

the internal environment to return it to a steady, constant, healthy state. **See Lesson: Organization of the Human Body.**

2. **A.** The dorsal cavity has two subdivisions: the cranial cavity and the spinal cavity. **See Lesson: Organization of the Human Body.**

3. **D.** In a supine position, a person is lying flat with the face and torso facing upward. **See Lesson: Organization of the Human Body.**

4. **C.** Thrombocytes, erythrocytes, and leukocytes are formed elements found in blood. Thrombocytes are the smallest with a cell diameter of 0.0008 millimeters, while leukocytes are the largest with a cell diameter of 0.02 millimeters. **See Lesson: Cardiovascular System.**

5. **B.** An electrocardiogram records a person's heart rate and rhythm to evaluate how well the heart functions. **See Lesson: Cardiovascular System.**

6. **C.** After air reaches the trachea, it travels through the bronchi, which branch into bronchioles before reaching the alveolar region of the lungs. **See Lesson: The Respiratory System.**

7. **D.** Pulmonary ventilation is the act of breathing, or respiration. The respiratory system uses this process to bring air into and out of the lungs. **See Lesson: The Respiratory System.**

8. **A.** The pharynx is found right behind the nasal cavity. It is a passageway through which food and air flow. See **Lesson: The**

Respiratory System.

9. **D.** Sucrase is the enzyme that breaks down sucrose. **See Lesson: Gastrointestinal System.**

10. **B.** Rugae increase the surface area of the interior of the stomach. **See Lesson: Gastrointestinal System.**

11. **B.** One function of the liver is to store vitamins. **See Lesson: Gastrointestinal System.**

12. **D.** The cervix joins the bottom of the uterus to the top of the vagina. **See Lesson: Reproductive System.**

13. **A.** Embryogenesis takes place over the first 11–12 weeks after fertilization, which corresponds with the first trimester of pregnancy. **See Lesson: Reproductive System.**

14. **C.** Fetal waste primarily passes through the umbilical cord into the mother's circulatory system, where it is removed primarily by the mother's kidneys. There is no mechanical connection between the fetus and the mother's anus or vagina; the fetus produces a large amount of metabolic waste. **See Lesson: Reproductive System.**

15. **A.** The fetus completes gestation in the uterus. Then, it passes through the cervix and out of the vagina during childbirth. The ovary and Fallopian tube are not involved in childbirth. The vas deferens is a component of the male reproductive system. **See Lesson: Reproductive**

System.

16. **A.** Hallmarks of ADH secretion impairment are frequent thirst and diluted urine. Because ADH is not communicating well with the kidneys, the collecting ducts are less permeable to water, which causes more water to be excreted than reabsorbed. This is why people with an impaired posterior pituitary gland also experience frequent urination. **See Lesson: The Urinary System.**

17. **B.** Urinary formation begins when blood flows through the renal arteries to the kidneys. Once this blood reaches the glomerulus in nephrons, it is filtered through various tubules before accumulating in the collecting duct. At the collecting duct, once all substances are reabsorbed, the leftover byproduct is urine. **See Lesson: The Urinary System.**

18. **A.** Ossification is the process of generating new bone tissue by filling in cartilage with mineral deposits to harden the cartilage. Growth plates are present near the ends of long bones. They are sites where ossification occurs so that a child's long bones can grow and the child can get taller. **See Lesson: Skeletal System.**

19. **B.** The sternum and ribcage are part of the axial skeleton. They protect the lungs from external damage. **See Lesson: Skeletal System.**

20. **C.** Flexor muscles are one part of a skeletal muscle pair that helps bones in the body move. They do so by causing a joint to bend. **See**

Lesson: Muscular System.

21. **A.** Molecules of ATP are used to energize and reenergize the protein molecules myosin according to the slide filament theory. The myosin myofilaments use ATP to attach their heads to thin actin filaments, pulling the thin filaments closer to the M-line during skeletal muscle contraction. **See Lesson: Muscular System.**

22. **C.** The hair shaft is the portion of hair found on the surface of the body. It is not attached to the hair follicle, which is in the dermis. **See Lesson: Integumentary System.**

23. **A.** The hypodermis is the subcutaneous layer beneath the dermis. It consists of fat, or adipose tissue, which serves as a layer of insulation deep inside the skin. This region also functions as an energy reservoir, supplying energy to cells. **See Lesson: Integumentary System.**

24. **A.** The hair bulb is found deep beneath the skin's surface under the hair root. Within this region, basal cells are actively dividing by mitosis. **See Lesson: Integumentary System.**

25. **C.** The limbic system is part of the forebrain, or cerebrum. It consists of four major structures: hypothalamus, hippocampus, amygdala, and thalamus. **See Lesson: The Nervous System.**

26. **A.** The interneuron is a type of nerve cell that bridges a connection between motor and sensory neurons to create neural circuits. This bridge facilitates communication between the neurons. **See Lesson: The**

Nervous System.

27. **A.** The limbic system is part of the forebrain that helps regulate memory and emotions. The amygdala is a structure in the limbic system that is considered the brain's aggression center. This structure controls activities related to feelings of anger, violence, and anxiety. **See Lesson: The Nervous System.**

28. **A.** To pass through the cell membrane, the chemical signals must be small and soluble. **See Lesson: Endocrine System.**

29. **D.** Melanocyte-stimulating hormones increase melanin production to make skin darker. **See Lesson: Endocrine System.**

30. **C.** Paracrine chemical signals are released by cells and have effects on other cell types. Somatostatin, secreted by the pancreas, inhibits the release of insulin by other cells in the pancreas. **See Lesson: Endocrine System.**

31. **B.** Because the endocrine glands are ductless, they empty hormones directly into the blood. **See Lesson: Endocrine System.**

32. **D.** Tiny bits of the virus's proteins are left on the surface of the cell that was infected. T cells have receptors that recognize these proteins. **See Lesson: The Lymphatic System.**

33. **A.** Vaccinations are examples of artificial/active immunity. **See Lesson: The Lymphatic System**

34. **B.** An intensive vaccination program led to the elimination of smallpox in the 1970s. **See Lesson: The Lymphatic System.**

35. **B.** The purpose of a taxonomic system is to classify, describe, and name living things in an organized manner. **See Lesson: An Introduction to Biology.**

36. **C.** The type of road salt used is the independent variable because it is the variable that is purposely changed during the study. It is the causative factor in the experiment. **See Lesson: An Introduction to Biology.**

37. **D.** Because a cell membrane is selectively permeable, only certain molecules are allowed to enter. For molecules such as sodium ions to enter, they have to travel through specialized channels. **See Lesson: Cell Structure, Function, and Type**.

38. **A.** Flagella are tails attached to a cell that aid in locomotion, or movement throughout a cell's external environment. **See Lesson: Cell Structure, Function, and Type**.

39. **A.** The most basic unit and building block of all living things is the cell. **See Lesson: Cell Structure, Function, and Type**.

40. **B.** Pyruvate is produced during the process of glycolysis. Because glycolysis happens in the cytoplasm of the cell, the chemist is most likely working with this structure. **See Lesson: Cellular Reproduction, Cellular Respiration, and Photosynthesis.**

41. **A.** A cell produces energy through metabolism by breaking glucose molecules into pyruvate. This happens via glycolysis. The pyruvate molecule is prepped for the citric acid cycle by being oxidized to Acetyl-CoA. Once the citric acid cycle happens, the largest amount of energy is generated via the electron transport chain. **See Lesson: Cellular Reproduction, Cellular Respiration, and Photosynthesis.**

42. **A.** Chiasmata are X-shaped structures that form when chromosomes from the mother and father of an organism undergoing meiosis are physically bound. This happens during prophase I of meiosis. **See Lesson: Cellular Reproduction, Cellular Respiration, and Photosynthesis.**

43. **C.** A chromosome is a rod-shaped structure that forms when a single DNA molecule and its associated proteins coil tightly before cell division. **See Lesson: Genetics and DNA.**

44. **C.** Cytosine will only bind with guanine, and vice versa. **See Lesson: Genetics and DNA.**

45. **C.** Other terms for *negative variation* are indirect correlation, inverse correlation, and negative correlation. **See Lesson: Designing an Experiment.**

46. **A.** The weight of fish is the dependent variable because it is dependent on how much food is supplied to each fish tank over the four-week period. **See Lesson: Designing an Experiment.**

47. **B.** The plant left outside is the control because it is not influenced by the independent variable, which is not experimentally manipulated. **See Lesson: Designing an Experiment.**

48. **D.** The atom described has a total of 8 electrons. Because it is neutral, it has the same number of protons as electrons. Any atom with 8 protons is oxygen, given by the atomic number in the periodic table. **See Lesson: Scientific Notation.**

49. **C.** The mass is determined by adding the numbers of protons and neutrons (17 + 20 = 37). **See Lesson: Scientific Notation.**

50. **C.** The electrons are found in the lowest possible shells. Only 2 can fit in the first shell, and only 8 can fit in the second shell. Filling those levels accommodates 10 electrons. The remaining 3 electrons will go into the third shell. **See Lesson: Scientific Notation.**

51. **B.** There are 1,000 grams in 1 kilogram. This means 1,800 grams divided by 1,000 grams yields 1.8 kilograms. **See Lesson: Temperature and the Metric System.**

52. **B.** The smallest unit of the available answer choices is kilometers. There are 1,000 meters in 1 kilometer. **See Lesson: Temperature and the Metric System.**

53. **C.** To convert 35°C to Kelvin, 273 must be added to this value, which yields the value of 308K. **See Lesson: Temperature and the Metric System.**

Section IV. English and Language Usage

1. **C.** With a word ending in *-y*, you drop the *-y* and add *-ies*. **See Lesson: Spelling.**

2. **D.** *she, do,* and *indian. She* is at the beginning of the sentence and needs to be capitalized. *Do* is at the beginning of a quoted sentence and also needs to be capitalized. Nationalities such as Indian should always be capitalized. **See Lesson: Capitalization.**

3. **A.** *There should be quotation marks.* Direct quotes from someone else should be enclosed in quotation marks. **See Lesson: Punctuation.**

4. **D.** *Classes* is the plural form of the noun *class*. **See Lesson: Nouns.**

5. **D.** We are looking for a possessive pronoun. *Whose* is a relative pronoun and can only be used to show possession when the sentence is a question. **See Lesson: Pronouns.**

6. **D.** These adjectives describe *Henry*. **See Lesson: Adjectives and Adverbs.**

7. **D.** *In, of,* and *on* are prepositions in the other titles. **See Lesson: Conjunctions and Prepositions.**

8. **A.** *Had been* is past perfect tense. **See Lesson: Verbs and Verb Tenses.**

9. **A.** The verb *has* must agree with the subject *everyone*. **See Lesson:**

Subject and Verb Agreement.

10. **C.** *Girls* is a third person plural subject, so it takes the verb form *are*. **See Lesson: Subject and Verb Agreement.**

11. **D.** The subordinate conjunction "although" combines the sentences and puts the focus on puppies requiring a lot of work. **See Lesson: Types of Sentences.**

12. **D.** This is a complex sentence because it has a dependent clause, an independent clause, and a subordinating conjunction, *despite*. **See Lesson: Types of Sentences.**

13. **B.** He ate a lot on vacation, but he did not gain any weight. These two clauses are of equal grammatical rank and can be connected with a coordinating conjunction. *But* is the conjunction that makes the most sense. **See Lesson: Types of Clauses.**

14. **A.** Coordinate clause. A coordinate clause is a sentence or phrase that combines clauses of equal grammatical rank (verbs, nouns, adjectives, phrases, or independent clauses) by using a coordinating conjunction (and, but, for, nor, or, so, yet). **See Lesson: Types of Clauses.**

15. **D.** Although. The word *although* signifies the beginning of a dependent clause and is the only conjunction that makes sense in the sentence. **See Lesson: Types of Clauses.**

16. **B.** I will be unable to come to your party. The sentence does not use

contractions and uses the most polite and formal vocabulary. **See Lesson: Formal and Informal Language.**

17. **B.** Writing a postcard. It is an informal mode of communication between close friends and relatives. **See Lesson: Formal and Informal Language.**

18. **D.** At a parent-teacher meeting. It is best to use formal language with a child's teacher to show respect. **See Lesson: Formal and Informal Language.**

19. **A.** The root *tele* means "far." See **Lesson: Root Words, Prefixes, and Suffixes.**

20. **D.** The prefix *trans* means "across," and the root word *luc* means "light," so *translucent* means "letting some light pass through or across." See **Lesson: Root Words, Prefixes, and Suffixes.**

21. **A.** The root *chrom* means "color" and the prefix *mono* means "one," so *monochromatic* means "having one color." See **Lesson: Root Words, Prefixes, and Suffixes.**

22. **B.** The root word *veri* means "true," so *veritable* means "genuine." See **Lesson: Root Words, Prefixes, and Suffixes.**

23. **C.** The prefix that means "with" is *con-.* See **Lesson: Root Words, Prefixes, and Suffixes.**

24. **C.** The word "application" has more than one meaning. **See Lesson:**

Context Clues and Multiple Meaning Words.

25. **D**. The meaning of <u>bass</u> in the context of this sentence is "a guitar with four strings that makes low sounds." **See Lesson: Context Clues and Multiple Meaning Words.**

26. **B**. The meaning of <u>formula</u> in this context is "a liquid that is given to babies." The phrase "baby" helps you figure out which meaning of <u>formula</u> is being used. **See Lesson: Context Clues and Multiple Meaning Words.**

27. **D**. The meaning of <u>somnambulist</u> in the context of this sentence is "sleepwalker." **See Lesson: Context Clues and Multiple Meaning Words.**

28. **D**. The meaning of <u>pungent</u> in this context is "having a strong smell." The word "tear" helps you figure out the meaning of <u>pungent</u>. **See Lesson: Context Clues and Multiple Meaning Words.**