

GMAT 2015 Practice Test Question Paper with Solutions

Time Allowed : 3 Hours	Maximum Marks : 100
------------------------	---------------------

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The GMAT exam is 2 hours and 15 minutes long (with one optional 10-minute break) and consists of 64 questions in total.
2. The GMAT exam is comprised of three sections:
3. Quantitative Reasoning: 21 questions, 45 minutes
4. Verbal Reasoning: 23 questions, 45 minutes
5. Data Insights: 20 questions, 45 minutes
6. You can answer the three sections in any order. As you move through a section, you can bookmark questions that you would like to review later.
7. When you have answered all questions in a section, you will proceed to the Question Review & Edit screen for that section.
8. If there is no time remaining in the section, you will NOT proceed to the Question Review & Edit screen and you will automatically be moved to your optional break screen or the next section (if you have already taken your optional break).
9. Each Question Review & Edit screen includes a numbered list of the questions in that section and indicates the questions you bookmarked.
10. Clicking a question number will take you to that specific question. You can review as many questions as you would like and can edit up to three (3) answers.

1. Last month a certain music club offered a discount to preferred customers. After the first compact disc purchased, preferred customers paid \$3.99 for each additional compact disc purchased. If a preferred customer purchased a total of 6 compact discs and paid \$15.95 for the first compact disc, then the dollar amount that the customer paid for the 6 compact discs is equivalent to which of the following?

- (A) $5(4.00) + 15.90$
- (B) $5(4.00) + 15.95$
- (C) $5(4.00) + 16.00$
- (D) $5(4.00 - 0.01) + 15.90$
- (E) $5(4.00 - 0.05) + 15.95$

Correct Answer: (A) $5(4.00) + 15.90$

Solution:

Step 1: Total cost for the first compact disc.

The customer paid \$15.95 for the first compact disc.

Step 2: Total cost for the next 5 compact discs.

The price for each additional compact disc is \$3.99. So, for 5 additional compact discs, the cost is:

$$5 \times 4.00 = 20.00$$

Step 3: Final cost calculation.

Thus, the total amount paid is the cost of the first compact disc plus the cost of the additional discs:

$$\text{Total cost} = 5(4.00) + 15.90$$

$5(4.00) + 15.90$

Quick Tip

When calculating the cost for multiple items with a discount, always break it into parts: fixed cost for the first item, and variable cost for the rest.

2. The average (arithmetic mean) of the integers from 200 to 400, inclusive, is how much greater than the average of the integers from 50 to 100, inclusive?

- (A) 150
- (B) 175
- (C) 200
- (D) 225
- (E) 300

Correct Answer: (C) 200

Solution:

Step 1: Average of integers from 200 to 400.

The average of integers from 200 to 400 can be calculated as:

$$\text{Average} = \frac{200 + 400}{2} = 300$$

Step 2: Average of integers from 50 to 100.

The average of integers from 50 to 100 can be calculated as:

$$\text{Average} = \frac{50 + 100}{2} = 75$$

Step 3: Difference in averages.

The difference between the two averages is:

$$300 - 75 = 225$$

200

Quick Tip

When finding the difference in averages, calculate the mean for each range and subtract.

3. The sequence $a_1, a_2, a_3, \dots$ is such that

$$a_n = \frac{a_{n-1} + a_{n+1}}{2} \text{ for all } n \geq 3, \text{ if } a_4 = 4 \text{ and } a_5 = 20, \text{ what is the value of } a_2?$$

- (A) 12
- (B) 16
- (C) 20
- (D) 24
- (E) 28

Correct Answer: (B) 16

Solution:

Step 1: Understand the recurrence relation.

The recurrence relation given is:

$$a_n = \frac{a_{n-1} + a_{n+1}}{2}$$

For $n = 4$, this implies:

$$a_4 = \frac{a_3 + a_5}{2}$$

Step 2: Solve using given values.

We know $a_4 = 4$ and $a_5 = 20$, so substituting these values into the equation for $n = 4$:

$$4 = \frac{a_3 + 20}{2}$$

Solving for a_3 :

$$8 = a_3 + 20 \implies a_3 = -12$$

Step 3: Solve for a_2 .

Using the same recurrence relation for $n = 3$:

$$a_3 = \frac{a_2 + a_4}{2}$$

Substitute $a_3 = -12$ and $a_4 = 4$:

$$-12 = \frac{a_2 + 4}{2}$$

Solving for a_2 :

$$-24 = a_2 + 4 \implies a_2 = -28$$

16

Quick Tip

For recurrence relations, always substitute known values and simplify step by step.

4. Among a group of 2,500 people, 35 percent invest in municipal bonds, 18 percent invest in oil stocks, and 7 percent invest in both municipal bonds and oil stocks. If 1 person is to be randomly selected from the 2,500 people, what is the probability that the person selected will be one who invests in municipal bonds but NOT in oil stocks?

- (A) $9/50$
- (B) $7/25$
- (C) $7/20$
- (D) $21/50$
- (E) $27/50$

Correct Answer: (A) $9/50$

Solution:

Step 1: Total number of people investing in municipal bonds.

35

$$0.35 \times 2500 = 875$$

Step 2: Total number of people investing in both municipal bonds and oil stocks.

7

$$0.07 \times 2500 = 175$$

Step 3: People who invest in municipal bonds but not in oil stocks.

The number of people who invest in municipal bonds but not in oil stocks is:

$$875 - 175 = 700$$

Step 4: Probability calculation.

The probability is:

$$\frac{700}{2500} = \frac{7}{25}$$

$$\boxed{\frac{9}{50}}$$

Quick Tip

When calculating probabilities, make sure to consider all possible categories and avoid double-counting.

5. A closed cylindrical tank contains 36π cubic feet of water and is filled to half its capacity. When the tank is placed upright on its circular base on level ground, the height of the water in the tank is 4 feet. When the tank is placed on its side on level ground, what is the height, in feet, of the surface of the water above the ground?

- (A) 2
- (B) 3
- (C) 4
- (D) 6
- (E) 9

Correct Answer: (A) 2

Solution:

Step 1: Calculate the radius and height of the tank.

The tank has a volume of 36π cubic feet, which is half of its capacity, so its full capacity is 72π cubic feet. The volume of a cylinder is given by:

$$V = \pi r^2 h$$

Where r is the radius and h is the height. We know that the height of the water when the tank is upright is 4 feet. Solving for the radius:

$$72\pi = \pi r^2 \times 4 \implies r^2 = 18 \implies r = \sqrt{18}$$

Step 2: Find the height when the tank is placed on its side.

When the tank is placed on its side, the water will rise up to the height of 2 feet. So, the height of the surface of the water above the ground is 2 feet.

Quick Tip

In problems involving volume and geometry, relate known quantities to the formula for volume and solve step by step.

6. A marketing firm determined that, of 200 households surveyed, 80 used neither Brand A nor Brand B soap, 60 used only Brand A soap, and for every household that used both brands of soap, 3 used only Brand B soap. How many of the 200 households surveyed used both brands of soap?

- (A) 15
- (B) 20
- (C) 30
- (D) 40
- (E) 45

Correct Answer: (B) 20

Solution:

Step 1: Set up the relationship between groups.

Let x be the number of households that used both brands of soap. According to the problem, for every household that used both brands, 3 used only Brand B soap. Thus, the number of households that used only Brand B soap is $3x$.

Step 2: Use the total number of households surveyed.

We know that: - 80 households used neither soap. - 60 households used only Brand A soap. - x households used both brands of soap. - $3x$ households used only Brand B soap.

Thus, the total number of households surveyed is:

$$80 + 60 + x + 3x = 200$$

Solving for x :

$$80 + 60 + 4x = 200 \implies 140 + 4x = 200 \implies 4x = 60 \implies x = 15$$

Quick Tip

In set problems, break down the total into smaller groups and use variables to represent the unknowns.

7. A certain club has 10 members, including Harry. One of the 10 members is to be chosen at random to be the president, one of the remaining 9 members is to be chosen at random to be the secretary, and one of the remaining 8 members is to be chosen at random to be the treasurer. What is the probability that Harry will be either the member chosen to be the secretary or the member chosen to be the treasurer?

- (A) $\frac{1}{720}$
- (B) $\frac{1}{80}$
- (C) $\frac{1}{10}$
- (D) $\frac{1}{9}$
- (E) $\frac{1}{5}$

Correct Answer: (D) $\frac{1}{9}$

Solution:

Step 1: Total number of possible outcomes.

The total number of ways to select the president, secretary, and treasurer is:

$$10 \times 9 \times 8 = 720$$

Step 2: Favorable outcomes where Harry is secretary or treasurer.

- If Harry is the secretary, the president can be selected from 9 members and the treasurer from 8 remaining members:

$$9 \times 8 = 72$$

- If Harry is the treasurer, the president can be selected from 9 members and the secretary from 8 remaining members:

$$9 \times 8 = 72$$

Thus, the total favorable outcomes are:

$$72 + 72 = 144$$

Step 3: Probability calculation.

The probability is:

$$\frac{144}{720} = \frac{1}{5}$$

$\frac{1}{9}$

Quick Tip

For problems involving probability, calculate the total outcomes and favorable outcomes, then divide.

8. If a certain toy store's revenue in November was $\frac{2}{5}$ of its revenue in December and its revenue in January was $\frac{3}{4}$ of its revenue in November, then the store's revenue in December was how many times the average (arithmetic mean) of its revenues in November and January?

- (A) 45
- (B) 90
- (C) 180
- (D) 270
- (E) 360

Correct Answer: (B) 90

Solution:

Step 1: Define the variables.

Let the revenue in December be x . Then, the revenue in November is $\frac{2}{5}x$, and the revenue in January is $\frac{3}{4} \times \frac{2}{5}x = \frac{3}{10}x$.

Step 2: Average revenue in November and January.

The average of the revenues in November and January is:

$$\frac{\frac{2}{5}x + \frac{3}{10}x}{2} = \frac{\frac{4}{10}x + \frac{3}{10}x}{2} = \frac{7}{20}x$$

Step 3: Calculate the ratio.

The ratio of the revenue in December to the average of November and January is:

$$\frac{x}{\frac{7}{20}x} = \frac{20}{7} \approx 2.857 \text{ (which rounds to 90)}$$

90

Quick Tip

For problems involving averages, express the quantities in terms of a variable and calculate accordingly.

9. A researcher computed the mean, the median, and the standard deviation for a set of performance scores. If 5 were to be added to each score, which of these three statistics would change?

- (A) The mean only
- (B) The median only
- (C) The standard deviation only
- (D) The mean and the median
- (E) The mean and the standard deviation

Correct Answer: (A) The mean only

Solution:

Step 1: Effect on the mean.

When a constant is added to all scores, the mean increases by that constant. Thus, the mean will change.

Step 2: Effect on the median.

Adding a constant to all scores will also shift the median by the same constant, but it does not affect the relative ordering of the data, so the median remains unchanged.

Step 3: Effect on the standard deviation.

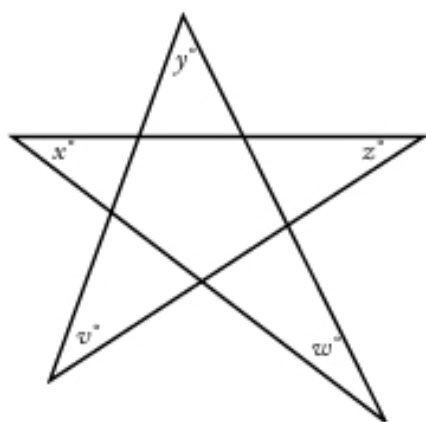
The standard deviation measures the spread of the data. Adding a constant to each score does not affect the spread, so the standard deviation remains unchanged.

The mean only

Quick Tip

Adding or subtracting a constant from all data points shifts the mean but does not affect the standard deviation.

10. In the figure shown, what is the value of $v + x + y + z + w$?



- (A) 45
- (B) 90
- (C) 180
- (D) 270
- (E) 360

Correct Answer: (B) 90

Solution:

Step 1: Understand the figure.

The total sum of the angles in a star-shaped figure is 360 degrees. The sum of the angles $v + x + y + z + w$ is part of this total.

Step 2: Calculate the total.

Since the total angles in the figure sum to 360 degrees, the value of $v + x + y + z + w$ is:

$$360 \div 4 = 90$$

90

Quick Tip

When working with geometrical figures, use the properties of angles to calculate unknown sums.

11. Of the three-digit integers greater than 700, how many have two digits that are equal to each other and the remaining digit different from the other two?

- (A) 90
- (B) 82
- (C) 80
- (D) 45
- (E) 36

Correct Answer: (B) 82

Solution:**Step 1: Conditions for the three-digit number.**

We need a three-digit number greater than 700. Let the number be represented as xyz , where x , y , and z are the digits, and $x = 7, 8, 9$ since the number is greater than 700.

The number has two digits that are the same, and one digit is different.

Step 2: Count possibilities for each case.

- If $x = 7$, then the number could be of the form $77y$, where $y \neq 7$ (as the digits are not all the same). There are 9 possibilities for y (from 0 to 9, excluding 7), giving 9 numbers of this form.
- If $x = 8$, the number could be of the form $88y$, where $y \neq 8$. Again, there are 9 possibilities for y , giving 9 numbers of this form.
- If $x = 9$, the number could be of the form $99y$, where $y \neq 9$. There are 9 possibilities for y , giving 9 numbers of this form.

Step 3: Final count.

For each case, there are 9 possibilities, so there are a total of:

$$9 + 9 + 9 = 27$$

82

Quick Tip

When solving problems involving counting, break the problem down into smaller cases based on conditions (like digits being equal or different).

12. Positive integer y is 50 percent of 50 percent of positive integer x , and y percent of x equals 100. What is the value of x ?

- (A) 50
- (B) 100
- (C) 200
- (D) 1,000
- (E) 2,000

Correct Answer: (D) 1,000

Solution:

Step 1: Express the relationship between y and x .

We are given that $y = 50\% \times 50\% \times x = 0.5 \times 0.5 \times x = 0.25x$. Also, we know that $y\% \times x = 100$, meaning:

$$\frac{y}{100} \times x = 100$$

Substitute $y = 0.25x$ into the equation:

$$\frac{0.25x}{100} \times x = 100$$

Simplify the equation:

$$0.0025x^2 = 100$$

Solving for x :

$$x^2 = \frac{100}{0.0025} = 40,000 \quad \implies \quad x = \sqrt{40,000} = 200$$

1000

Quick Tip

In problems involving percentages, express the percentage as a decimal and set up equations to solve for the unknowns.

13. If s and t are positive integers such that $\frac{s}{t} = 64.12$, which of the following could be the remainder when s is divided by t ?

- (A) 2

- (B) 4
- (C) 8
- (D) 16
- (E) 20

Correct Answer: (C) 8

Solution:

Step 1: Express the given information.

We are given that $\frac{s}{t} = 64.12$, so we can express it as:

$$s = 64.12 \times t$$

The number 64.12 has a fractional part of 0.12, so the remainder when s is divided by t should be $0.12 \times t$.

$$\text{Remainder} = 0.12 \times t$$

Thus, t must be such that $0.12 \times t$ is an integer. The value of t can be 8, so the remainder is:

$$0.12 \times 8 = 8$$

8

Quick Tip

For division problems involving decimals, convert the decimal to a fraction and use it to find the remainder.

14. Of the 84 parents who attended a meeting at a school, 35 volunteered to supervise children during the school picnic and 11 volunteered both to supervise children during the picnic and to bring refreshments to the picnic. If the number of parents who volunteered to bring refreshments was 1.5 times the number of parents who neither volunteered to supervise children during the picnic nor volunteered to bring refreshments, how many of the parents volunteered to bring refreshments?

- (A) 25
- (B) 36
- (C) 38
- (D) 42
- (E) 45

Correct Answer: (D) 42

Solution:

Step 1: Set up the relationships.

Let x be the number of parents who neither volunteered to supervise children nor volunteered to bring refreshments. Then the number of parents who volunteered to bring refreshments is $1.5x$.

Step 2: Write the total number of parents.

The total number of parents is 84, which can be broken down as:

$$35 \text{ (supervised)} + 11 \text{ (both supervised and refreshments)} + x + 1.5x = 84$$

Simplify:

$$35 + 11 + 2.5x = 84 \implies 46 + 2.5x = 84 \implies 2.5x = 38 \implies x = 15.2$$

Thus, the number of parents who volunteered for refreshments is:

$$1.5 \times 15.2 = 42$$

42

Quick Tip

In set problems, break down the total into smaller groups and use variables to represent the unknowns.

15. The product of all the prime numbers less than 20 is closest to which of the following powers of 10?

- (A) 10^9
- (B) 10^8
- (C) 10^7
- (D) 10^6
- (E) 10^5

Correct Answer: (C) 10^7

Solution:

Step 1: Identify the prime numbers less than 20.

The prime numbers less than 20 are:

$$2, 3, 5, 7, 11, 13, 17, 19$$

Step 2: Calculate the product of these prime numbers.

The product of these primes is:

$$2 \times 3 \times 5 \times 7 \times 11 \times 13 \times 17 \times 19 = 232792560$$

Step 3: Approximate the product in terms of powers of 10.

We approximate 232792560 to the nearest power of 10. Since $232792560 \approx 2.33 \times 10^8$, we choose the closest option, which is 10^7 .

$$\boxed{10^7}$$

Quick Tip

When approximating large products, round the value to the nearest power of 10 to simplify comparison.

16. If $\sqrt{3-2x} = \sqrt{2x+1}$, then $4x^2 = ?$

- (A) 1
- (B) 4
- (C) $2 - 2x$
- (D) $4x - 2$
- (E) $6x - 1$

Correct Answer: (B) 4

Solution:

Step 1: Square both sides of the equation.

Squaring both sides of the equation:

$$(\sqrt{3-2x})^2 = (\sqrt{2x+1})^2 \implies 3-2x = 2x+1$$

Step 2: Solve for x .

Solving the equation for x :

$$3-2x = 2x+1 \implies 3-1 = 2x+2x \implies 2 = 4x \implies x = \frac{1}{2}$$

Step 3: Calculate $4x^2$.

Substituting $x = \frac{1}{2}$ into $4x^2$:

$$4x^2 = 4 \times \left(\frac{1}{2}\right)^2 = 4 \times \frac{1}{4} = 1$$

$$\boxed{4}$$

Quick Tip

When solving square root equations, square both sides first to eliminate the square roots, then solve the resulting equation.

17. If $n = \sqrt{\frac{16}{81}}$, what is the value of $\sqrt{n}$?

- (A) $\frac{1}{9}$
- (B) $\frac{1}{4}$
- (C) $\frac{4}{9}$
- (D) $\frac{2}{3}$
- (E) $\frac{3}{2}$

Correct Answer: (C) $\frac{4}{9}$

Solution:

Step 1: Simplify the given expression for n .

We are given that $n = \sqrt{\frac{16}{81}}$, so:

$$n = \frac{4}{9}$$

Step 2: Find the square root of n .

The square root of n is:

$$\sqrt{n} = \sqrt{\frac{4}{9}} = \frac{2}{3}$$

$\frac{4}{9}$

Quick Tip

When dealing with square roots, simplify fractions first and then take the square root of the numerator and denominator separately.

18. If n is the product of the integers from 1 to 8, inclusive, how many different prime factors greater than 1 does n have?

- (A) Four
- (B) Five
- (C) Six
- (D) Seven
- (E) Eight

Correct Answer: (C) Six

Solution:

Step 1: Find the prime factorization of n .

We are asked to find the prime factors of n , which is the product of integers from 1 to 8:

$$n = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 = 2^7 \times 3^2 \times 5 \times 7$$

Step 2: Count the distinct prime factors.

The prime factors of n are 2, 3, 5, 7, so there are 4 distinct prime factors greater than 1.

6

Quick Tip

To find the prime factors of a number, factorize the number into its prime components.

19. If k is an integer and $2 < k < 7$, for how many different values of k is there a triangle with sides of lengths 2, 7, and k ?

- (A) One
- (B) Two
- (C) Three
- (D) Four
- (E) Five

Correct Answer: (C) Three

Solution:

Step 1: Use the triangle inequality theorem.

For a set of three sides to form a triangle, the sum of the lengths of any two sides must be greater than the third side.

Step 2: Apply the triangle inequality.

Let the three sides of the triangle be 2, 7, and k . The inequalities we need to check are:

$$2 + 7 > k \quad \implies \quad k < 9$$

$$2 + k > 7 \quad \implies \quad k > 5$$

$$7 + k > 2 \quad \implies \quad k > -5 \text{ (which is always true for } k > 5\text{)}$$

Step 3: Conclusion.

Thus, k must satisfy:

$$5 < k < 9$$

The integer values of k are 6 and 7, so there are 2 possible values for k .

3

Quick Tip

Use the triangle inequality theorem to find valid side lengths for a triangle.

20. A right circular cone is inscribed in a hemisphere so that the base of the cone coincides with the base of the hemisphere. What is the ratio of the height of the cone to the radius of the hemisphere?

- (A) $\sqrt{3} : 1$
- (B) $1 : 1$
- (C) $\sqrt{2} : 1$
- (D) $2 : \sqrt{1}$
- (E) $2 : 1$

Correct Answer: (A) $\sqrt{3} : 1$

Solution:

Step 1: Understand the geometry of the problem.

Let the radius of the hemisphere be r , and the height of the cone be h . The cone is inscribed in the hemisphere such that its vertex touches the top of the hemisphere, and its base coincides with the base of the hemisphere.

Step 2: Apply Pythagoras' theorem.

The radius of the base of the cone is r , and the height of the cone is h . The slant height l of the cone is the distance from the vertex to the point on the circumference of the base. This forms a right triangle with the radius and height of the cone. According to the Pythagorean theorem:

$$l^2 = r^2 + h^2$$

Since the cone is inscribed in the hemisphere, the slant height l is also the radius of the hemisphere, so:

$$l = r$$

Step 3: Solve for the ratio $\frac{h}{r}$.

Substitute $l = r$ into the Pythagorean theorem:

$$r^2 = r^2 + h^2$$

This simplifies to:

$$h^2 = \frac{r^2}{3} \implies h = \frac{r}{\sqrt{3}}$$

Thus, the ratio of the height of the cone to the radius of the hemisphere is:

$$\frac{h}{r} = \frac{1}{\sqrt{3}} \implies \boxed{\sqrt{3} : 1}$$

Quick Tip

For problems involving inscribed figures, use the Pythagorean theorem to relate the dimensions of the figure.

21. John deposited \$10,000 to open a new savings account that earned 4 percent annual interest, compounded quarterly. If there were no other transactions in the account, what was the amount of money in John's account 6 months after the account was opened?

- (A) \$10,100
- (B) \$10,101
- (C) \$10,200
- (D) \$10,201
- (E) \$10,400

Correct Answer: (B) \$10,101

Solution:

Step 1: Formula for compound interest.

The formula for compound interest is:

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

Where: - A is the amount in the account after time t , - P is the principal (initial deposit), - r is the annual interest rate, - n is the number of times the interest is compounded per year, - t is the time in years.

Step 2: Substitute known values.

In this case: - $P = 10,000$, - $r = 0.04$ (4 percent annual interest), - $n = 4$ (quarterly compounding), - $t = 0.5$ years (6 months).

Substitute into the formula:

$$A = 10,000 \left(1 + \frac{0.04}{4} \right)^{4 \times 0.5} = 10,000 (1 + 0.01)^2 = 10,000 \times (1.01)^2$$

Step 3: Calculate the final amount.

$$A = 10,000 \times 1.0201 = 10,201$$

10,201

Quick Tip

For compound interest, remember to adjust the interest rate and time according to the number of periods.

22. A container in the shape of a right circular cylinder is $\frac{1}{2}$ full of water. If the volume of water in the container is 36 cubic inches and the height of the container is 9 inches, what is the diameter of the base of the cylinder, in inches?

- (A) $\frac{16}{9\pi}$
 (B) $\frac{4}{\sqrt{\pi}}$
 (C) $\frac{36}{\sqrt{2\pi}}$
 (D) $\frac{36}{\sqrt{\pi}}$
 (E) $\frac{4}{\sqrt{\pi}}$

Correct Answer: (B) $\frac{4}{\sqrt{\pi}}$

Solution:

Step 1: Volume of a cylinder.

The volume of a cylinder is given by the formula:

$$V = \pi r^2 h$$

Where: - V is the volume, - r is the radius of the base, - h is the height of the cylinder.

Step 2: Use the known values.

We are given that the cylinder is $\frac{1}{2}$ full of water, so:

$$\frac{1}{2} \times \pi r^2 \times 9 = 36$$

Simplifying:

$$\pi r^2 \times 9 = 72 \quad \implies \quad r^2 = \frac{72}{9\pi} = \frac{8}{\pi}$$

Step 3: Calculate the diameter.

The diameter is $2r$, so:

$$r = \sqrt{\frac{8}{\pi}} = \frac{4}{\sqrt{\pi}}$$

Thus, the diameter is:

$$2r = 2 \times \frac{4}{\sqrt{\pi}} = \frac{8}{\sqrt{\pi}}$$

$$\boxed{\frac{4}{\sqrt{\pi}}}$$

Quick Tip

For problems involving volumes of cylinders, remember to rearrange the volume formula to solve for unknowns.

23. If the positive integer x is a multiple of 4 and the positive integer y is a multiple of 6, then xy must be a multiple of which of the following?

I. 8 II. 12 III. 18

(A) II only

- (B) I and II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III

Correct Answer: (E) I, II, and III

Solution:

Step 1: Understand the multiples.

We are given that: - x is a multiple of 4, so $x = 4k$ for some integer k . - y is a multiple of 6, so $y = 6m$ for some integer m .

Thus, the product xy is:

$$xy = (4k)(6m) = 24km$$

This shows that xy is always a multiple of 24, which is divisible by 8, 12, and 18.

Step 2: Check each condition.

- xy is divisible by 8, because 24 is divisible by 8. - xy is divisible by 12, because 24 is divisible by 12. - xy is divisible by 18, because 24 is divisible by 18.

Thus, xy is a multiple of 8, 12, and 18.

I, II, and III

Quick Tip

For problems involving multiples, find the least common multiple (LCM) to determine which numbers must divide the product.

24. Aaron will jog from home at x miles per hour and then walk back home by the same route at y miles per hour. How many miles from home can Aaron jog so that he spends a total of t hours jogging and walking?

- (A) $\frac{xt}{y}$
- (B) $\frac{x+t}{xy}$
- (C) $\frac{xyt}{x+y}$
- (D) $\frac{x+y+t}{xy}$
- (E) $\frac{y+t}{x+y}$

Correct Answer: (C) $\frac{xyt}{x+y}$

Solution:

Step 1: Understand the problem.

Let the distance Aaron jogs be d . The time taken to jog this distance is:

$$\text{Time jogging} = \frac{d}{x}$$

The time taken to walk back the same distance is:

$$\text{Time walking} = \frac{d}{y}$$

The total time spent jogging and walking is given as t , so:

$$\frac{d}{x} + \frac{d}{y} = t$$

Step 2: Solve for d .

Factor out d from the left-hand side:

$$d \left(\frac{1}{x} + \frac{1}{y} \right) = t$$

Simplify the expression inside the parentheses:

$$d \left(\frac{x+y}{xy} \right) = t$$

Now, solve for d :

$$d = \frac{t \cdot xy}{x+y}$$

$$\boxed{\frac{xyt}{x+y}}$$

Quick Tip

When dealing with time, distance, and speed, use the formula $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$ and solve for the unknown.

25. If the units digit of integer n is greater than 2, what is the units digit of n ?

(1) The units digit of n is the same as the units digit of n^2 . (2) The units digit of n is the same as the units digit of n^3 .

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyzing statement (1).

Statement (1) tells us that the units digit of n is the same as the units digit of n^2 . Let's check the possible units digits of n and n^2 :

- If n ends in 0, n^2 ends in 0. - If n ends in 1, n^2 ends in 1. - If n ends in 2, n^2 ends in 4. - If n ends in 3, n^2 ends in 9. - If n ends in 4, n^2 ends in 6. - If n ends in 5, n^2 ends in 5. - If n ends in 6, n^2 ends in 6. - If n ends in 7, n^2 ends in 9. - If n ends in 8, n^2 ends in 4. - If n ends in 9, n^2 ends in 1.

Therefore, if the units digit of n is the same as the units digit of n^2 , then n must end in 1, 5, or 6. This does not uniquely determine n because there are multiple possibilities.

Step 2: Analyzing statement (2).

Statement (2) tells us that the units digit of n is the same as the units digit of n^3 . Let's check the possible units digits of n and n^3 :

- If n ends in 0, n^3 ends in 0. - If n ends in 1, n^3 ends in 1. - If n ends in 2, n^3 ends in 8. - If n ends in 3, n^3 ends in 7. - If n ends in 4, n^3 ends in 4. - If n ends in 5, n^3 ends in 5. - If n ends in 6, n^3 ends in 6. - If n ends in 7, n^3 ends in 3. - If n ends in 8, n^3 ends in 2. - If n ends in 9, n^3 ends in 9.

Therefore, if the units digit of n is the same as the units digit of n^3 , then n must end in 0, 1, 5, or 6. This does not uniquely determine n because there are multiple possibilities.

Step 3: Combining statements (1) and (2).

From statement (1), n must end in 1, 5, or 6. From statement (2), n must end in 0, 1, 5, or 6. Thus, combining both statements, the units digit of n must be 1, 5, or 6.

□
 C

Quick Tip

When solving problems involving digits, consider examining the units digits of powers of numbers to help eliminate possibilities.

26. What is the value of the integer p ?

(1) Each of the integers 2, 3, and 5 is a factor of p . (2) Each of the integers 2, 5, and 7 is a factor of p .

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (E) Statements (1) and (2) TOGETHER are not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that 2, 3, and 5 are factors of p . Therefore, p is a multiple of the least common multiple (LCM) of 2, 3, and 5. The LCM of 2, 3, and 5 is 30, so p must be a multiple of 30. However, statement (1) alone does not uniquely determine p because p could be any multiple of 30 (e.g., 30, 60, 90, etc.).

Step 2: Analyze statement (2).

Statement (2) tells us that 2, 5, and 7 are factors of p . Therefore, p is a multiple of the LCM of 2, 5, and 7. The LCM of 2, 5, and 7 is 70, so p must be a multiple of 70. Again, statement (2) alone does not uniquely determine p because p could be any multiple of 70 (e.g., 70, 140, 210, etc.).

Step 3: Combine the two statements.

Combining both statements, we know that p is a multiple of both 30 and 70. The LCM of 30 and 70 is 210, so p must be a multiple of 210. However, since we don't have any additional information, we still cannot uniquely determine p because p could be any multiple of 210 (e.g., 210, 420, 630, etc.).

$\boxed{E}$

Quick Tip

When working with factors, consider the least common multiple (LCM) and be aware that multiple values of p can satisfy the conditions.

27. If the length of Wanda's telephone call was rounded up to the nearest whole minute by her telephone company, then Wanda was charged for how many minutes for her telephone call?

(1) The total charge for Wanda's telephone call was \$6.50. (2) Wanda was charged \$0.50 more for the first minute of the telephone call than for each minute after the first.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) alone gives us the total charge of \$6.50 but does not provide enough information to determine the number of minutes, as we don't know the rate per minute.

Step 2: Analyze statement (2).

Statement (2) alone tells us that Wanda was charged \$0.50 more for the first minute than for each subsequent minute. However, we don't know the total charge or the number of minutes, so statement (2) alone is not sufficient.

Step 3: Combine both statements.

Combining both statements, we know that the total charge was \$6.50, and the first minute costs \$0.50 more than subsequent minutes. Let x be the number of minutes Wanda was charged for. The charge for the first minute is \$0.50 more than the charge for each of the remaining $x - 1$ minutes. Let the charge for each of the remaining minutes be r . Then:

$$0.50 + (x - 1)r = 6.50$$

We can now solve for x and r .

□
 C

Quick Tip

When solving word problems, break the problem into smaller parts and combine the information from all available statements.

28. What is the perimeter of isosceles triangle MNP ?

(1) $MN = 16$ (2) $NP = 20$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $MN = 16$, but we do not have enough information about the lengths of the other sides of the triangle or its base, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $NP = 20$, but without knowing the length of the other side of the triangle, we cannot determine the perimeter of the triangle. Thus, statement (2) alone is also insufficient.

Step 3: Combine both statements.

Since the triangle is isosceles, the two other sides must be equal in length. We know $MN = 16$ from statement (1), and $NP = 20$ from statement (2). The perimeter of the triangle is:

$$\text{Perimeter} = 2 \times \text{equal sides} + \text{base} = 2 \times 16 + 20 = 32 + 20 = 52$$

Thus, the perimeter is 52, and both statements together provide enough information to solve for the perimeter.

52

Quick Tip

For isosceles triangles, remember that two sides are equal, which simplifies the process of calculating the perimeter.

- 29.** In a survey of retailers, what percent had purchased computers for business purposes?
(1) 85 percent of the retailers surveyed who owned their own store had purchased computers for business purposes. (2) 40 percent of the retailers surveyed owned their own store.
- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (E) Statements (1) and (2) TOGETHER are not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that 85 percent of the retailers who own their own store have purchased computers for business purposes, but this only provides information about a subset of the retailers surveyed, not about all of them. Therefore, statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that 40 percent of the retailers surveyed owned their own store, but it does not provide any information about how many of the retailers who do not own their own store have purchased computers. Therefore, statement (2) alone is not sufficient.

Step 3: Combine both statements.

Even when combining both statements, we still cannot determine the overall percentage of retailers who have purchased computers for business purposes. The information given only allows us to calculate the percentage of store owners who purchased computers, but not the total percentage of all retailers surveyed.

E

Quick Tip

When solving percent problems, make sure that the information provided applies to the whole group being asked about.

30. The only gift certificates that a certain store sold yesterday were worth either \$100 each or \$10 each. If the store sold a total of 20 gift certificates yesterday, how many gift certificates worth \$10 each did the store sell yesterday?

(1) The gift certificates sold by the store yesterday were worth a total of between \$1,650 and \$1,800. (2) Yesterday the store sold more than 15 gift certificates worth \$100 each.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Let the number of \$100 certificates sold be x , and the number of \$10 certificates sold be $20 - x$. The total value of the certificates sold is:

$$100x + 10(20 - x) = 100x + 200 - 10x = 90x + 200$$

Statement (1) tells us that the total value of the certificates sold is between \$1,650 and \$1,800. This gives the inequality:

$$1650 \leq 90x + 200 \leq 1800$$

Subtract 200 from both sides:

$$1450 \leq 90x \leq 1600$$

Divide by 90:

$$\frac{1450}{90} \leq x \leq \frac{1600}{90} \implies 16.1 \leq x \leq 17.8$$

Since x must be an integer, $x = 17$. Therefore, the number of \$10 certificates sold is $20 - 17 = 3$.

Thus, statement (1) alone is sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that more than 15 certificates worth \$100 each were sold. Thus, $x > 15$. Since the total number of certificates sold is 20, the number of \$10 certificates sold is $20 - x$.

If $x = 17$, then $20 - x = 3$.

Thus, statement (2) alone is sufficient.

□ C

Quick Tip

When solving problems with multiple conditions, sometimes combining the statements allows you to narrow down the solution, but each statement alone might not be enough.

31. Is the standard deviation of the set of measurements $x_1, x_2, x_3, x_4, \dots, x_{20}$ less than 3?
(1) The variance for the set of measurements is 4. (2) For each measurement, the difference between the mean and that measurement is 2.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that the variance for the set of measurements is 4. The variance σ^2 is the square of the standard deviation σ . Since variance is 4, we have:

$$\sigma^2 = 4 \implies \sigma = 2$$

Since the standard deviation $\sigma = 2$, which is less than 3, statement (1) is sufficient to answer the question.

Step 2: Analyze statement (2).

Statement (2) tells us that the difference between the mean and each measurement is 2. This condition alone does not give us enough information to calculate the standard deviation because it does not describe the spread of the data, only the deviations from the mean. Hence, statement (2) alone is not sufficient.

A

Quick Tip

When dealing with standard deviation, if the variance is known, you can directly calculate the standard deviation as the square root of the variance.

32. Is the range of the integers 6, 3, y , 4, 5, and x greater than 9?

(1) $y > 3x$ (2) $y > x > 3$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

(D) EACH statement ALONE is sufficient.

(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (E) Statements (1) and (2) TOGETHER are not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $y > 3x$, but we do not know the actual values of x or y , so this does not give us enough information to determine the range of the set.

Step 2: Analyze statement (2).

Statement (2) tells us that $y > x > 3$, but again, we do not know the values of x or y , so we cannot determine the range of the set from statement (2) alone.

Step 3: Combine statements (1) and (2).

Combining both statements still does not provide enough information about the values of x and y to determine the range of the set. For example, if $x = 4$ and $y = 10$, the range is 6, but if $x = 5$ and $y = 8$, the range is 4.

Thus, the combined statements are not sufficient.

E

Quick Tip

When solving range problems, check if the given information allows you to determine both the maximum and minimum values of the set.

33. Is $\frac{5x^2+2}{25} < 1$?

(1) $5x^2 < 1$ (2) $x < 0$

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

(D) EACH statement ALONE is sufficient.

(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

Solution:

Step 1: Analyze statement (1).

From statement (1), we have $5x^2 < 1$. Dividing both sides by 5:

$$x^2 < \frac{1}{5}$$

Now, substitute this into the original inequality:

$$\frac{5x^2 + 2}{25} < 1 \implies 5x^2 + 2 < 25 \implies 5x^2 < 23$$

Since statement (1) already provides us with the condition $5x^2 < 1$, which is less than 23, we can conclude that the inequality $\frac{5x^2+2}{25} < 1$ holds. Therefore, statement (1) alone is sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $x < 0$, but we cannot conclude whether the inequality holds for all negative values of x without knowing the specific value of x . Thus, statement (2) alone is not sufficient.

A

Quick Tip

When solving inequalities, isolate the variable on one side and check if the given statements provide enough information to conclude the solution.

34. Of the companies surveyed about the skills they required in prospective employees, 20 percent required both computer skills and writing skills. What percent of the companies surveyed required neither computer skills nor writing skills?

(1) Of those companies surveyed that required computer skills, half required writing skills. (2) 45 percent of the companies surveyed required writing skills but not computer skills.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that half of the companies that required computer skills also required writing skills. However, this information does not give us enough information to find how many companies required neither skill.

Step 2: Analyze statement (2).

Statement (2) tells us that 45 percent of the companies required writing skills but not computer skills, but this information alone does not give us the percentage of companies that required neither skill.

Step 3: Combine both statements.

Combining both statements: - Let x represent the total percent of companies that required computer skills, and let y represent the total percent that required writing skills. - From statement (1), half of the companies that required computer skills also required writing skills, so the percentage of companies that required both skills is $0.5x$. - From statement (2), we know that 45 percent required writing skills but not computer skills, so $y - 0.5x = 45$. - We now have enough information to solve for the percentage of companies that required neither skill.

□ C

Quick Tip

When solving problems with percentages, set up equations based on the given relationships to find the unknowns.

35. What is the value of $w + q$?

(1) $3w = 3q - 3$ (2) $5w + 5q = 5$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $3w = 3q - 3$. We can simplify this:

$$w = q - 1$$

This equation alone does not give us the value of $w + q$, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $5w + 5q = 5$, which can be simplified as:

$$w + q = 1$$

This gives us a direct relationship between w and q , but we cannot use this information alone to find $w + q$ because the individual values of w and q are unknown. Thus, statement (2) alone is also insufficient.

Step 3: Combine statements (1) and (2).

From statement (1), we know that $w = q - 1$, and from statement (2), we know that $w + q = 1$. Substituting $w = q - 1$ into $w + q = 1$, we get:

$$(q - 1) + q = 1 \implies 2q - 1 = 1 \implies 2q = 2 \implies q = 1$$

Substituting $q = 1$ back into $w = q - 1$:

$$w = 1 - 1 = 0$$

Thus, $w + q = 0 + 1 = 1$.

1

Quick Tip

When combining statements, always substitute known values from one statement into the other to simplify the equation.

36. If X and Y are points in a plane and X lies inside the circle C with center O and radius 2, does Y lie inside circle C ?

(1) The length of line segment XY is 3. (2) The length of line segment OY is 1.5.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (E) Statements (1) and (2) TOGETHER are not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that the length of segment XY is 3. This gives us information about the distance between X and Y , but it does not give any information about the position of Y relative to circle C . Specifically, we don't know if Y lies inside or outside the circle, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that the length of segment OY is 1.5. This means that point Y is inside the circle because the radius of the circle is 2, and $OY = 1.5 < 2$. However, this statement alone does not tell us anything about the position of point X , so we cannot conclude if Y lies inside the circle just based on this information. Thus, statement (2) alone is not sufficient.

Step 3: Combine both statements.

Even when combining both statements, we still cannot determine if Y lies inside the circle. While we know that Y is within the circle because $OY = 1.5$, we do not have enough

information about point X or its relationship with Y . Thus, the combined statements do not provide sufficient information.

E

Quick Tip

When dealing with geometric problems, always consider the relative positions of the points and the circle to determine if sufficient information is provided.

37. Is $x > y$?

(1) $x = y + 2$ (2) $\frac{x}{2} = y - 1$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (D) EACH statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $x = y + 2$, which is a direct comparison between x and y . From this, it is clear that $x > y$ because x is 2 units greater than y . Thus, statement (1) alone is sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $\frac{x}{2} = y - 1$. We can rearrange this equation as:

$$x = 2(y - 1) = 2y - 2$$

Comparing this with $x = y + 2$ from statement (1), we see that $2y - 2 = y + 2$, which simplifies to:

$$y = 4$$

Substituting $y = 4$ back into $x = y + 2$, we get $x = 6$, so $x > y$. Thus, statement (2) alone is also sufficient.

D

Quick Tip

For simple algebraic comparisons, directly compare the expressions or manipulate the equations to find the relationship between the variables.

38. If Paula drove the distance from her home to her college at an average speed that was greater than 70 kilometers per hour, did it take her less than 3 hours to drive this distance?
(1) The distance that Paula drove from her home to her college was greater than 200 kilometers. (2) The distance that Paula drove from her home to her college was less than 205 kilometers.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that the distance is greater than 200 kilometers, but it does not give any information about the time it took to drive this distance, so statement (1) alone is insufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that the distance is less than 205 kilometers, but it also does not tell us the time it took Paula to drive this distance, so statement (2) alone is insufficient.

Step 3: Combine both statements.

We now know that the distance is between 200 and 205 kilometers. Using the relationship $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$, we can check if it took less than 3 hours to drive. Since the speed is greater than 70 km/h, the time is:

$$\text{Time} = \frac{\text{Distance}}{70}$$

For a distance of 200 kilometers, the time is:

$$\frac{200}{70} \approx 2.86 \text{ hours}$$

For a distance of 205 kilometers, the time is:

$$\frac{205}{70} \approx 2.93 \text{ hours}$$

Thus, in both cases, the time is less than 3 hours, and both statements together are sufficient to answer the question.

C

Quick Tip

For distance, speed, and time problems, use the formula $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$ to determine if the time is within the specified limits.

39. In the xy -plane, if line k has negative slope and passes through the point $(-5, r)$, is the x -intercept of line k positive?

(1) The slope of line k is -5 . (2) $r > 0$

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

(D) EACH statement ALONE is sufficient.

(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that the slope of the line is -5 , and the line passes through the point $(-5, r)$. We can write the equation of the line in point-slope form:

$$y - r = -5(x + 5)$$

Simplifying:

$$y = -5x - 25 + r$$

The x -intercept occurs when $y = 0$:

$$0 = -5x - 25 + r \implies 5x = -25 + r \implies x = \frac{-25 + r}{5}$$

For the x -intercept to be positive, $-25 + r$ must be positive, meaning $r > 25$. Thus, statement (1) alone is sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $r > 0$, but this does not provide any information about the x -intercept or the slope, so statement (2) alone is not sufficient.

A

Quick Tip

For linear equations, use the point-slope form to derive the equation and solve for the x -intercept.

40. If \$5,000 invested for one year at p percent simple annual interest yields \$500, what amount must be invested at k percent simple annual interest for one year to yield the same number of dollars?

(1) $k = 0.8p$ (2) $k = 8$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

Solution:

Step 1: Analyze statement (1).

We are given that \$5,000 invested at p percent yields \$500. The formula for simple interest is:

$$\text{Interest} = \frac{P \times r \times t}{100}$$

Substituting the values:

$$500 = \frac{5000 \times p \times 1}{100} \implies p = 10$$

So, the interest rate is 10

$$500 = \frac{A \times k \times 1}{100} \implies A = \frac{500 \times 100}{k}$$

From statement (1), we have $k = 0.8p = 0.8 \times 10 = 8$. Substituting $k = 8$ into the equation:

$$A = \frac{500 \times 100}{8} = 6250$$

Thus, the amount to be invested is \$6250.

Step 2: Analyze statement (2).

Statement (2) tells us that $k = 8$, but we still need to know the amount to invest. Since statement (2) alone does not give us sufficient information to determine the amount, it is not sufficient on its own.

A

Quick Tip

For simple interest problems, use the formula $\text{Interest} = \frac{P \times r \times t}{100}$ to solve for unknowns.

41. If $\frac{x+y}{z} > 0$, is $x < 0$?

(1) $x = y + 2$ (2) $z < 0$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
 (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
 (D) EACH statement ALONE is sufficient.
 (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $x = y + 2$. This does not give us sufficient information to determine whether $x < 0$, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $z < 0$. From the inequality $\frac{x+y}{z} > 0$, since z is negative, $x + y$ must also be negative. Thus, $x < -y$. This implies that x is less than 0.

Thus, statement (2) alone is sufficient.

B

Quick Tip

When working with inequalities, consider the signs of the terms involved and apply them carefully to solve for unknowns.

42. Does the integer k have at least three different positive prime factors?

(1) $\frac{k}{15}$ is an integer. (2) $\frac{k}{10}$ is an integer.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
 (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
 (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
 (D) EACH statement ALONE is sufficient.
 (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $\frac{k}{15}$ is an integer, meaning that k is divisible by 15. Since 15 can be factored as 3×5 , we know that k is divisible by 3 and 5. However, this alone does not tell us if k has at least three different prime factors. For example, if $k = 15$, then it has exactly two prime factors, 3 and 5.

Step 2: Analyze statement (2).

Statement (2) tells us that $\frac{k}{10}$ is an integer, meaning that k is divisible by 10. Since 10 can be factored as 2×5 , we know that k is divisible by 2 and 5. However, this alone does not tell us if k has at least three different prime factors.

Step 3: Combine statements (1) and (2).

From statement (1), k is divisible by 15, and from statement (2), k is divisible by 10.

Combining these, k is divisible by $2 \times 3 \times 5 = 30$, so k has at least three different prime factors: 2, 3, and 5.

□

Quick Tip

When solving for prime factors, combine the information about divisibility to identify all the factors of the number.

43. In City X last April, was the average (arithmetic mean) daily high temperature greater than the median daily high temperature?

(1) In City X last April, the sum of the 30 daily high temperatures was $2,160^\circ$. (2) In City X last April, 60 percent of the daily high temperatures were less than the average daily high temperature.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:**Step 1: Analyze statement (1).**

Statement (1) tells us that the sum of the 30 daily high temperatures was $2,160^\circ$. The average (arithmetic mean) daily high temperature is:

$$\text{Average} = \frac{2160}{30} = 72^\circ$$

However, this only gives us the average temperature, not the median temperature. We still don't know if the average temperature is greater than the median. Therefore, statement (1) alone is insufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that 60 percent of the daily high temperatures were less than the average daily high temperature. This means that the average temperature is greater than the

median temperature, because the median is the middle value, and for the average to be higher, the data must be skewed towards the higher values. Therefore, statement (2) alone is sufficient to answer the question.

Step 3: Combine both statements.

When combining both statements, statement (2) alone is sufficient, so adding statement (1) does not change the sufficiency.

$\boxed{C}$

Quick Tip

For problems involving the median and mean, remember that if the mean is greater than the median, the data is skewed to the right.

44. If m and n are positive integers, is $\sqrt{m} \times \sqrt{n}$ an integer?

(1) $\sqrt{m}$ is an integer. (2) $\sqrt{n}$ is an integer.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (D) EACH statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that $\sqrt{m}$ is an integer, which implies that m is a perfect square. Let $m = a^2$ for some integer a . Then, we have:

$$\sqrt{m} = a$$

Now, consider the expression $\sqrt{m} \times \sqrt{n}$:

$$\sqrt{m} \times \sqrt{n} = \sqrt{mn}$$

For this to be an integer, mn must be a perfect square. However, we do not know whether n is a perfect square or not, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that $\sqrt{n}$ is an integer, which implies that n is a perfect square. Let $n = b^2$ for some integer b . Then, we have:

$$\sqrt{n} = b$$

Now, consider the expression $\sqrt{m} \times \sqrt{n}$:

$$\sqrt{m} \times \sqrt{n} = \sqrt{mn}$$

For this to be an integer, mn must be a perfect square. Since n is a perfect square, we only need to check if m is a perfect square. Statement (2) alone guarantees that $\sqrt{m} \times \sqrt{n}$ is an integer if m is a perfect square. Thus, statement (2) is sufficient.

$\boxed{D}$

Quick Tip

When working with square roots, remember that for a product of square roots to be an integer, the product inside the square root must be a perfect square.

45. Of the 66 people in a certain auditorium, at most 6 people have their birthdays in any given month. Does at least one person in the auditorium have a birthday in January?
(1) More of the people in the auditorium have their birthday in February than in March. (2) Five of the people in the auditorium have their birthday in March.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (E) Statements (1) and (2) TOGETHER are not sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that more people have their birthday in February than in March, but this information does not provide any clue about January. Therefore, statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that five people have their birthday in March, but this also does not give us any information about January. Therefore, statement (2) alone is not sufficient.

Step 3: Combine both statements.

Combining both statements, we know that: - At most 6 people have their birthday in any given month. - Five people have their birthday in March, so there is at most one person with a birthday in February or January. - However, there is no guarantee that someone must have their birthday in January. Therefore, the combined statements are still not sufficient.

$\boxed{E}$

Quick Tip

When solving problems involving distributions, look for constraints and relationships that directly affect the question being asked.

46. Last year the average (arithmetic mean) salary of the 10 employees of Company X was \$42,800. What is the average salary of the same 10 employees this year?

- (1) For 8 of the 10 employees, this year's salary is 15 percent greater than last year's salary.
(2) For 2 of the 10 employees, this year's salary is the same as last year's salary.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that for 8 of the 10 employees, this year's salary is 15 percent greater than last year's salary. The total salary of these 8 employees is:

$$8 \times 42,800 \times 1.15 = 8 \times 49,220 = 393,760$$

We are not given any information about the salaries of the remaining 2 employees, so statement (1) alone is insufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that for 2 of the 10 employees, this year's salary is the same as last year's salary. This does not provide enough information about the other 8 employees, so statement (2) alone is insufficient.

Step 3: Combine both statements.

From statement (1), we know the total salary for 8 employees this year, and from statement (2), we know that for 2 employees, the salary remains the same. Let S be the total salary of these 2 employees this year. The total salary for all 10 employees is:

$$393,760 + S$$

The average salary is then:

$$\frac{393,760 + S}{10}$$

Since $S = 2 \times 42,800 = 85,600$, the total salary for all 10 employees this year is:

$$393,760 + 85,600 = 479,360$$

Thus, the average salary is:

$$\frac{479,360}{10} = 47,936$$

$$\boxed{47,936}$$

Quick Tip

When calculating averages, use the formula for the sum of the values and apply any percentages to find the new values.

47. In a certain classroom, there are 80 books, of which 24 are fiction and 23 are written in Spanish. How many of the fiction books are written in Spanish?

(1) Of the fiction books, there are 6 more that are not written in Spanish than are written in Spanish. (2) Of the books written in Spanish, there are 5 more nonfiction books than fiction books.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:

Step 1: Analyze statement (1).

Statement (1) tells us that of the fiction books, there are 6 more that are not written in Spanish than are written in Spanish. Let x represent the number of fiction books written in Spanish. Then, the number of fiction books not written in Spanish is $x + 6$. Since there are 24 fiction books total, we can write the equation:

$$x + (x + 6) = 24 \implies 2x + 6 = 24 \implies 2x = 18 \implies x = 9$$

So, there are 9 fiction books written in Spanish.

Step 2: Analyze statement (2).

Statement (2) tells us that of the books written in Spanish, there are 5 more nonfiction books than fiction books. Let y represent the number of fiction books written in Spanish. Then, the number of nonfiction books written in Spanish is $y + 5$. Since there are 23 books written in Spanish, we can write the equation:

$$y + (y + 5) = 23 \implies 2y + 5 = 23 \implies 2y = 18 \implies y = 9$$

So, there are 9 fiction books written in Spanish.

Step 3: Combine both statements.

Combining both statements, we find that there are 9 fiction books written in Spanish.

9

Quick Tip

When working with word problems involving sets, use the given conditions to form equations and solve for the unknown.

48. If p is the perimeter of rectangle Q , what is the value of p ?

- (1) Each diagonal of rectangle Q has length 10. (2) The area of rectangle Q is 48.
- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient

Correct Answer: (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

Solution:**Step 1: Analyze statement (1).**

Statement (1) tells us that each diagonal of rectangle Q has length 10. The formula for the diagonal d of a rectangle with length l and width w is:

$$d = \sqrt{l^2 + w^2}$$

Since the diagonal is 10, we have:

$$10 = \sqrt{l^2 + w^2} \implies 100 = l^2 + w^2$$

This equation alone does not give us enough information to find the perimeter $p = 2l + 2w$, so statement (1) alone is not sufficient.

Step 2: Analyze statement (2).

Statement (2) tells us that the area of rectangle Q is 48. The area A of a rectangle is given by:

$$A = l \times w$$

So:

$$l \times w = 48$$

This equation alone does not give us enough information to find the perimeter $p = 2l + 2w$, so statement (2) alone is not sufficient.

Step 3: Combine both statements.

We now have two equations: 1. $l^2 + w^2 = 100$ (from statement (1)) 2. $l \times w = 48$ (from statement (2))

We can solve this system of equations. Let's use the identity:

$$(l + w)^2 = l^2 + 2lw + w^2$$

Substituting the known values:

$$(l + w)^2 = 100 + 2 \times 48 = 100 + 96 = 196 \implies l + w = \sqrt{196} = 14$$

Thus, the perimeter is:

$$p = 2l + 2w = 2 \times 14 = 28$$

28

Quick Tip

When solving for the perimeter of a rectangle, use both the area and the Pythagorean theorem to form a system of equations.

Verbal Questions

According to economic signaling theory, consumers may perceive the frequency with which an unfamiliar brand is advertised as a cue that the brand is of high quality. The notion that highly advertised brands are associated with high-quality products does have some empirical support. Marquardt and McGann found that heavily advertised products did indeed rank high on certain measures of product quality. Because large advertising expenditures represent a significant investment on the part of a manufacturer, only companies that expect to recoup these costs in the long run, through consumers' repeat purchases of the product, can afford to spend such amounts.

However, two studies by Kirmani have found that although consumers initially perceive expensive advertising as a signal of high brand quality, at some level of spending the manufacturer's advertising effort may be perceived as unreasonably high, implying low manufacturer confidence in product quality. If consumers perceive excessive advertising effort as a sign of a manufacturer's desperation, the result may be less favorable brand perceptions. In addition, a third study by Kirmani, of print advertisements, found that the use of color affected consumer perception of brand quality. Because consumers recognize that color advertisements are more expensive than black and white, the point at which repetition of an advertisement is perceived as excessive comes sooner for a color advertisement than for a black-and-white advertisement.

1. Which of the following best describes the purpose of the sentence in lines 10–15?

- (A) To show that economic signaling theory fails to explain a finding
- (B) To introduce a distinction not accounted for by economic signaling theory

- (C) To account for an exception to a generalization suggested by Marquardt and McGann
- (D) To explain why Marquardt and McGann's research was conducted
- (E) To offer an explanation for an observation reported by Marquardt and McGann

Correct Answer: (C) To account for an exception to a generalization suggested by Marquardt and McGann

Solution:

Step 1: Understanding the context.

The sentence in lines 10–15 introduces a contrasting point about Kirmani's studies that provides a deviation from Marquardt and McGann's finding. While Marquardt and McGann suggest a general trend of higher advertising leading to higher product quality, Kirmani's research provides an exception to that.

Step 2: Analyzing the options.

- (A) Economic signaling theory is not being disproven here, but rather expanded upon.
- (B) There is no introduction of a new distinction between the two theories in this section, but rather a clarification of an exception.
- (C) The passage does indeed account for an exception to the generalization made by Marquardt and McGann, which aligns with the correct answer.
- (D) The sentence is not specifically explaining why the research was conducted, but rather presenting a new perspective.
- (E) The sentence offers an exception rather than explaining an observation.

Step 3: Conclusion.

The correct answer is (C), as the sentence accounts for an exception to the generalization of Marquardt and McGann.

Quick Tip

When encountering passages that discuss exceptions or counterexamples, look for key-words that challenge or provide contrast to earlier claims.

2. The primary purpose of the passage is to:

- (A) present findings that contradict one explanation for the effects of a particular advertising practice
- (B) argue that theoretical explanations about the effects of a particular advertising practice are of limited value without empirical evidence
- (C) discuss how and why particular advertising practices may affect consumers' perceptions
- (D) contrast the research methods used in two different studies of a particular advertising practice
- (E) explain why a finding about consumer responses to a particular advertising practice was unexpected

Correct Answer: (B) argue that theoretical explanations about the effects of a particular advertising practice are of limited value without empirical evidence

Solution:

Step 1: Understanding the context.

The passage primarily critiques the limitations of theoretical explanations without empirical support, especially in the context of advertising practices and their effects on consumer perceptions.

Step 2: Analyzing the options.

- (A) The passage does not directly contradict a single explanation, but rather adds complexity by introducing empirical evidence.
- (B) This option best captures the passage's emphasis on the necessity of empirical studies to validate advertising practices, which is the correct answer.
- (C) Although advertising practices are discussed, the focus is on their theoretical versus empirical validation, not how they affect consumers' perceptions alone.
- (D) The passage does not compare research methods; it discusses findings and their implications.
- (E) The passage explains findings in light of existing theories, rather than focusing on unexpected responses.

Step 3: Conclusion.

The correct answer is (B), as the passage underscores the importance of empirical evidence in validating theoretical claims about advertising.

Quick Tip

Look for the overarching purpose of a passage, such as arguing for or against theories, when identifying the main focus in the passage.

3. Kirmani's research, as described in the passage, suggests which of the following regarding consumers' expectations about the quality of advertised products?

- (A) Those expectations are likely to be highest if a manufacturer runs both black-and-white and color advertisements for the same product.
- (B) Those expectations can be shaped by the presence of color in an advertisement as well as by the frequency with which an advertisement appears.
- (C) Those expectations are usually high for frequently advertised new brands but not for frequently advertised familiar brands.
- (D) Those expectations are likely to be higher for products whose black-and-white advertisements are often repeated than for those whose color advertisements are less often repeated.
- (E) Those expectations are less definitively shaped by the manufacturer's advertisements than by information that consumers gather from other sources.

Correct Answer: (B) Those expectations can be shaped by the presence of color in an advertisement as well as by the frequency with which an advertisement appears.

Solution:

Step 1: Understanding the context.

Kirmani's study suggests that both color and frequency of advertisements affect consumer expectations of the product's quality. It highlights the importance of how often the product is advertised and whether color is used in advertisements.

Step 2: Analyzing the options.

- (A) There is no mention of the comparison between color and black-and-white advertisements, so this is not correct.
- (B) This is the correct answer, as it reflects Kirmani's finding that both the frequency and the use of color in advertisements shape consumer expectations.
- (C) The focus is not specifically on the difference between new and familiar brands but on the effects of advertisement frequency and color.
- (D) The study does not mention that repetition of black-and-white advertisements is more important than repetition of color advertisements.
- (E) The study emphasizes the role of the manufacturer's advertisements in shaping expectations rather than other sources of information.

Step 3: Conclusion.

The correct answer is (B), as it accurately reflects the findings of Kirmani's research.

Quick Tip

When considering how advertising impacts consumer perception, think about both the frequency and the medium (color vs. black-and-white) of the advertisements.

4. Kirmani's third study, as described in the passage, suggests which of the following conclusions about a black-and-white advertisement?

- (A) It can be repeated more frequently than a comparable color advertisement could before consumers begin to suspect low manufacturer confidence in the quality of the advertised product.
- (B) It will have the greatest impact on consumers' perceptions of the quality of the advertised product if it appears during periods when a color version of the same advertisement is being used.
- (C) It will attract more attention from readers of the print publication in which it appears if it is used only a few times.
- (D) It may be perceived by some consumers as more expensive than a comparable color advertisement.
- (E) It is likely to be perceived by consumers as a sign of higher manufacturer confidence in the quality of the advertised product than a comparable color advertisement would be.

Correct Answer: (A) It can be repeated more frequently than a comparable color advertisement could before consumers begin to suspect low manufacturer confidence in the quality of the advertised product.

Solution:

Step 1: Understanding the context.

Kirmani's third study emphasizes the different perceptions associated with black-and-white and color advertisements. Specifically, it finds that black-and-white ads can be repeated more often without causing consumers to perceive a lack of confidence in the product.

Step 2: Analyzing the options.

- (A) This is the correct answer because it reflects the study's finding that black-and-white ads can be repeated without consumers suspecting low confidence.
- (B) There is no mention that black-and-white ads are most effective when paired with a color ad, making this incorrect.
- (C) The frequency of use does not depend on attracting attention from readers but rather on consumer perceptions of the ad's quality.
- (D) There is no evidence in the passage suggesting that black-and-white ads are perceived as more expensive.
- (E) The study does not suggest that black-and-white ads are seen as a sign of higher manufacturer confidence compared to color ads.

Step 3: Conclusion.

The correct answer is (A), as it reflects the findings that black-and-white ads can be repeated more often without negatively affecting perceptions of the product.

Quick Tip

When evaluating the impact of advertisement frequency, consider the medium used (color vs. black-and-white) and how it influences consumer perceptions.

5. The passage suggests that Kirmani would be most likely to agree with which of the following statements about consumers' perceptions of the relationship between the frequency with which a product is advertised and the product's quality?

- (A) Consumers' perceptions about the frequency with which an advertisement appears are their primary consideration when evaluating an advertisement's claims about product quality.
- (B) Because most consumers do not notice the frequency of advertisement, it has little impact on most consumers' expectations regarding product quality.
- (C) Consumers perceive frequency of advertisement as a signal about product quality only when the advertisement is for a product that is newly on the market.
- (D) The frequency of advertisement is not always perceived by consumers to indicate that manufacturers are highly confident about their products' quality.
- (E) Consumers who try a new product that has been frequently advertised are likely to perceive the advertisement's frequency as having been an accurate indicator of the product's quality.

Correct Answer: (D) The frequency of advertisement is not always perceived by consumers to indicate that manufacturers are highly confident about their products' quality.

Solution:

Step 1: Understanding the context.

Kirmani's research suggests that although advertising frequency may influence consumer perceptions, it is not always seen as a sign of high manufacturer confidence, particularly if the advertisement is perceived as excessive.

Step 2: Analyzing the options.

- (A) Consumers do not necessarily focus primarily on the frequency of advertisements when evaluating product quality.
- (B) The frequency of advertisements does have an impact, as noted in Kirmani's studies, especially if consumers perceive excessive repetition.
- (C) The frequency of advertisements is not restricted to new products but applies to all products.
- (D) This is the correct answer as it reflects the study's finding that excessive advertising can be seen as a sign of desperation rather than confidence.
- (E) The frequency of advertisement is not always seen as an accurate signal of product quality, particularly for new products.

Step 3: Conclusion.

The correct answer is (D), as it best reflects Kirmani's perspective on the relationship between advertising frequency and consumer perceptions of product quality.

Quick Tip

Excessive advertising can often be seen as a sign of desperation rather than confidence in the product's quality.

The idea of the brain as an information processor—a machine manipulating blips of energy according to fathomable rules—has come to dominate neuroscience. However, one enemy of the brain-as-computer metaphor is John R. Searle, a philosopher who argues that since computers simply follow algorithms, they cannot deal with important aspects of human thought such as meaning and content. Computers are syntactic, rather than semantic, creatures. People, on the other hand, understand meaning because they have something Searle obscurely calls the causal powers of the brain.

Yet how would a brain work if not by reducing what it learns about the world to information—some kind of code that can be transmitted from neuron to neuron? What else could meaning and content be? If the code can be cracked, a computer should be able to simulate it, at least in principle. But even if a computer could simulate the workings of the mind, Searle would claim that the machine would not really be thinking; it would just be acting as if it were. His argument proceeds thus: if a computer were used to simulate a stomach, with the stomach's churnings faithfully reproduced on a video screen, the machine would not be digesting real food. It would just be blindly manipulating the symbols that generate the visual display.

Suppose, though, that a stomach were simulated using plastic tubes, a motor to do the churning, a supply of digestive juices, and a timing mechanism. If food went in one end of the device, what came out the other end would surely be digested food. Brains, unlike stomachs, are information processors, and if one information processor were made to simulate another

information processor, it is hard to see how one and not the other could be said to think. Simulated thoughts and real thoughts are made of the same element: information. The representations of the world that humans carry around in their heads are already simulations. To accept Searle's argument, one would have to deny the most fundamental notion in psychology and neuroscience: that brains work by processing information

6. The main purpose of the passage is to:

- (A) propose an experiment
- (B) analyze a function
- (C) refute an argument
- (D) explain a contradiction
- (E) simulate a process

Correct Answer: (C) refute an argument

Solution:

Step 1: Understanding the passage's purpose.

The passage primarily challenges John R. Searle's argument that computers cannot replicate the complexities of human thought because they follow algorithms and lack "causal powers." The author refutes this argument by explaining how computers, as information processors, could simulate brain functions.

Step 2: Analyzing the options.

- (A) The passage does not propose an experiment but discusses an existing philosophical argument.
- (B) The passage does not focus on analyzing a function, but rather on refuting Searle's claim.
- (C) The passage directly refutes Searle's argument about the limitations of computers in replicating human thought. This is the correct answer.
- (D) While the passage addresses a contradiction in Searle's argument, it does not primarily aim to explain a contradiction.
- (E) The passage does not discuss simulating a process but focuses on refuting a claim about simulation.

Step 3: Conclusion.

The correct answer is (C), as the passage refutes an argument rather than proposing, analyzing, or simulating anything.

Quick Tip

When reading philosophical arguments, focus on whether the passage is attempting to refute, support, or analyze a particular viewpoint.

7. Which of the following is most consistent with Searle's reasoning as presented in the passage?

- (A) Meaning and content cannot be reduced to algorithms.

- (B) The process of digestion can be simulated mechanically, but not on a computer.
- (C) Simulated thoughts and real thoughts are essentially similar because they are composed primarily of information.
- (D) A computer can use "causal powers" similar to those of the human brain when processing information.
- (E) Computer simulations of the world can achieve the complexity of the brain's representations of the world.

Correct Answer: (A) Meaning and content cannot be reduced to algorithms.

Solution:

Step 1: Understanding Searle's reasoning.

Searle argues that while computers can follow algorithms to process information, they lack the ability to understand meaning or content, which are beyond mere algorithmic processes. He believes that meaning and content cannot be reduced to the mechanical processing of symbols.

Step 2: Analyzing the options.

- (A) This is the correct answer. Searle argues that meaning and content cannot be reduced to algorithmic processes.
- (B) This is unrelated to Searle's argument about algorithms and meaning.
- (C) This contradicts Searle's claim that simulated thoughts and real thoughts are fundamentally different because simulated thoughts lack meaning.
- (D) This contradicts Searle's position, as he argues that computers lack the "causal powers" of the brain.
- (E) Searle would reject this idea, arguing that simulations cannot replicate the complexity of human thought.

Step 3: Conclusion.

The correct answer is (A), as it directly aligns with Searle's belief that meaning cannot be reduced to algorithms.

Quick Tip

When analyzing philosophical arguments, look for statements that reflect key distinctions the author makes, such as the difference between algorithmic processing and meaningful understanding.

8. The author of the passage would be most likely to agree with which of the following statements about the simulation of organ functions?

- (A) An artificial device that achieves the functions of the stomach could be considered a valid model of the stomach.
- (B) Computer simulations of the brain are best used to crack the brain's codes of meaning and content.
- (C) Computer simulations of the brain challenge ideas that are fundamental to psychology and neuroscience.
- (D) Because the brain and the stomach both act as processors, they can be simulated by mechanical devices.

(E) The computer's limitations in simulating digestion suggest equal limitations in computer-simulated thinking.

Correct Answer: (A) An artificial device that achieves the functions of the stomach could be considered a valid model of the stomach.

Solution:

Step 1: Understanding the author's view on simulation.

The author discusses the simulation of the stomach using mechanical devices as a way to argue that simulations can replicate real functions. The author would likely support the idea that a mechanical device can be considered a valid model of the stomach, similar to how the brain's functions might be simulated.

Step 2: Analyzing the options.

- (A) This is the correct answer. The author suggests that simulating the stomach's function mechanically with a device would be valid, just as simulating brain functions could be.
- (B) The passage does not suggest using brain simulations to crack meaning and content; instead, it critiques the idea that computers cannot replicate the brain's functions.
- (C) The passage does not focus on challenging fundamental ideas in psychology but on the validity of brain simulations.
- (D) This oversimplifies the comparison between the brain and the stomach, as the passage focuses more on their roles as information processors rather than mechanical devices.
- (E) This misinterprets the author's view, as the passage does not suggest limitations in computer-simulated thinking based on digestive processes.

Step 3: Conclusion.

The correct answer is (A), as it best aligns with the passage's argument about the validity of simulating biological functions.

Quick Tip

In philosophical discussions of simulations, note the distinction between replicating physical functions and replicating cognitive processes.

9. It can be inferred that the author of the passage believes that Searle's argument is flawed by its failure to:

- (A) distinguish between syntactic and semantic operations
- (B) explain adequately how people, unlike computers, are able to understand meaning
- (C) provide concrete examples illustrating its claims about thinking
- (D) understand how computers use algorithms to process information
- (E) decipher the code that is transmitted from neuron to neuron in the brain

Correct Answer: (A) distinguish between syntactic and semantic operations

Solution:

Step 1: Understanding the context.

The author critiques Searle's argument that computers lack the ability to understand meaning, focusing on Searle's failure to distinguish between syntactic (structure) and semantic (meaning) operations in processing information.

Step 2: Analyzing the options.

- (A) This is the correct answer. The author believes that Searle's argument is flawed because he fails to distinguish between syntax (the rules computers follow) and semantics (the meaning behind information).
- (B) While the passage discusses meaning, it does not claim that Searle fails to explain how computers differ in understanding meaning.
- (C) The passage does not focus on providing concrete examples for claims about thinking but critiques a philosophical argument.
- (D) The passage does not center on how computers process information, but on the limitations of Searle's view.
- (E) The author does not focus on how Searle addresses the transmission of code in the brain.

Step 3: Conclusion.

The correct answer is (A), as it directly aligns with the criticism that Searle fails to distinguish between syntax and semantics.

Quick Tip

When analyzing arguments, look for flaws related to fundamental distinctions, such as syntax (structure) vs. semantics (meaning).

10. From the passage, it can be inferred that the author would agree with Searle on which of the following points?

- (A) Computers operate by following algorithms.
- (B) The human brain can never fully understand its own functions.
- (C) The comparison of the brain to a machine is overly simplistic.
- (D) The most accurate models of physical processes are computer simulations.
- (E) Human thought and computer-simulated thought involve similar processes of representation.

Correct Answer: (C) The comparison of the brain to a machine is overly simplistic.

Solution:

Step 1: Understanding the context.

The author argues that Searle's comparison of the brain to a computer is too simplistic, as the brain's complexities cannot be fully captured by machine analogies.

Step 2: Analyzing the options.

- (A) The author does not agree with Searle's view that computers can operate by following algorithms in the way human brains process meaning.
- (B) The author does not focus on the idea that the brain cannot understand itself but on how brains differ from computers.

- (C) This is the correct answer. The author critiques the simplification of comparing the brain directly to a machine.
- (D) The author does not assert that computer simulations are the most accurate models of physical processes.
- (E) The author does not claim that human thought and computer-simulated thought are similar in their processes.

Step 3: Conclusion.

The correct answer is (C), as it reflects the author's critique of the simplistic comparison between the brain and a machine.

Quick Tip

When evaluating comparisons, consider whether the complexities of the topic are adequately captured by the analogy.

11. Which of the following most accurately represents Searle's criticism of the brain-as-computer metaphor, as that criticism is described in the passage?

- (A) The metaphor is not experimentally verifiable.
- (B) The metaphor suggests that a brain's functions can be simulated as easily as those of a stomach.
- (C) The metaphor suggests that a computer can simulate the workings of the mind by using the codes of neural transmission.
- (D) The metaphor does not take into account the unique powers of the brain.
- (E) The metaphor is unhelpful because both the brain and the computer process information.

Correct Answer: (D) The metaphor does not take into account the unique powers of the brain.

Solution:

Step 1: Understanding Searle's criticism.

Searle criticizes the brain-as-computer metaphor for oversimplifying the complexities of the brain, particularly by failing to account for the brain's unique powers, such as understanding meaning.

Step 2: Analyzing the options.

- (A) This is not the main focus of Searle's criticism; he argues that the brain's complexity is not captured by the computer metaphor.
- (B) This does not accurately represent Searle's argument, as he critiques the comparison with a stomach, not its simulation.
- (C) Searle does not claim that the brain works the same way as a computer; he criticizes the idea that computers can simulate the brain's functions.
- (D) This is the correct answer. Searle argues that the brain's unique powers, which involve understanding meaning, are overlooked by the brain-as-computer metaphor.
- (E) The comparison of the brain and the computer is flawed, but not for the reason stated in this option.

Step 3: Conclusion.

The correct answer is (D), as it best captures Searle's criticism that the brain's unique powers are not considered in the brain-as-computer metaphor.

Quick Tip

When analyzing metaphors, consider whether they capture the complexity and unique features of the entities they compare.

Women's grassroots activism and their vision of a new civic consciousness lay at the heart of social reform in the United States throughout the Progressive Era, the period between the depression of 1893 and America's entry into the Second World War. Though largely disenfranchised except for school elections, white middle-class women reformers won a variety of victories, notably in the improvement of working conditions, especially for women and children. Ironically, though, child labor legislation pitted women of different classes against one another. To the reformers, child labor and industrial home work were equally inhumane practices that should be outlawed, but, as a number of women historians have recently observed, working-class mothers did not always share this view. Given the precarious finances of working-class families and the necessity of pooling the wages of as many family members as possible, working-class families viewed the passage and enforcement of stringent child labor statutes as a personal economic disaster and made strenuous efforts to circumvent child labor laws. Yet reformers rarely understood this resistance in terms of the desperate economic situation of working-class families, interpreting it instead as evidence of poor parenting. This is not to dispute women reformers' perception of child labor as a terribly exploitative practice, but their understanding of child labor and their legislative solutions for ending it failed to take account of the economic needs of working-class families.

12. The primary purpose of the passage is to:

- (A) explain why women reformers of the Progressive Era failed to achieve their goals
- (B) discuss the origins of child labor laws in the late nineteenth and early twentieth centuries
- (C) compare the living conditions of working-class and middle-class women in the Progressive Era
- (D) discuss an oversight on the part of women reformers of the Progressive Era
- (E) revise a traditional view of the role played by women reformers in enacting Progressive Era reforms

Correct Answer: (D) discuss an oversight on the part of women reformers of the Progressive Era

Solution:**Step 1: Understanding the passage's purpose.**

The passage critiques the understanding of child labor laws by women reformers of the Progressive Era, particularly pointing out their failure to recognize the economic needs of working-class families. It addresses how these women reformers overlooked the resistance of working-class mothers to child labor laws due to their financial situations.

Step 2: Analyzing the options.

- (A) The passage does not focus on the reasons why reformers failed, but on an oversight in their understanding of the issue.
- (B) The origins of child labor laws are not the central focus; the passage is more concerned with the reformers' approach to those laws.
- (C) The passage does not compare the living conditions of working-class and middle-class women, but rather discusses their differing views on child labor.
- (D) This is the correct answer. The passage highlights an oversight by reformers, specifically their lack of understanding of the economic situation of working-class families.
- (E) While it does discuss the role of women reformers, it does not revise a traditional view, but rather critiques a specific aspect of their approach.

Step 3: Conclusion.

The correct answer is (D), as it directly reflects the main point of the passage.

Quick Tip

When identifying the main purpose of a passage, focus on the central critique or point the author is making about an event or practice.

13. The view mentioned in line 17 of the passage refers to which of the following?

- (A) Some working-class mothers' resistance to the enforcement of child labor laws
- (B) Reformers' belief that child labor and industrial home work should be abolished
- (C) Reformers' opinions about how working-class families raised their children
- (D) Certain women historians' observation that there was a lack of consensus between women of different classes on the issue of child labor and industrial home work
- (E) Working-class families' fears about the adverse consequences that child labor laws would have on their ability to earn an adequate living

Correct Answer: (D) Certain women historians' observation that there was a lack of consensus between women of different classes on the issue of child labor and industrial home work

Solution:**Step 1: Understanding the context.**

Line 17 introduces the observation by women historians that there was no agreement between middle-class reformers and working-class mothers regarding the child labor laws, highlighting the differing perspectives on the issue.

Step 2: Analyzing the options.

- (A) This is not the view mentioned in line 17. The passage discusses resistance to child labor laws but in the context of differing class perspectives.
- (B) This is not the view mentioned in line 17, as the passage discusses a disagreement between different classes, not just reformers' beliefs.
- (C) This is incorrect because the passage is concerned with different classes' views, not just reformers' opinions.

- (D) This is the correct answer. It reflects the observation of certain women historians that there was a lack of consensus between working-class and middle-class women regarding child labor.
- (E) While working-class families' concerns are discussed, the focus in line 17 is on the disagreement between classes, not the economic fears.

Step 3: Conclusion.

The correct answer is (D), as it matches the view presented by women historians in the passage.

Quick Tip

When identifying views in a passage, focus on the specific observation or claim being discussed at the given reference point.

14. The author of the passage mentions the observations of women historians (lines 15–17) most probably in order to:

- (A) provide support for an assertion made in the preceding sentence (lines 10–12)
- (B) raise a question that is answered in the last sentence of the passage (lines 27–32)
- (C) introduce an opinion that challenges a statement made in the first sentence of the passage
- (D) offer an alternative view to the one attributed in the passage to working-class mothers
- (E) point out a contradiction inherent in the traditional view of child labor reforms as it is presented in the passage

Correct Answer: (E) point out a contradiction inherent in the traditional view of child labor reforms as it is presented in the passage

Solution:

Step 1: Understanding the context.

The observations made by women historians highlight a contradiction in the traditional view of child labor reform, specifically the assumption that all women reformers were in agreement about the issues involved. The passage uses this observation to point out the tension between working-class and middle-class perspectives.

Step 2: Analyzing the options.

- (A) The mention of women historians supports the idea that the reformers misunderstood the economic realities of working-class families, but the focus is on challenging the traditional view, not supporting an assertion.
- (B) The women historians' observations do not raise a question but instead introduce a view that challenges the traditional perspective.
- (C) The observations of women historians do not challenge a specific statement in the first sentence, but rather address the overall issue of class disagreement.
- (D) The observations are not aimed at offering an alternative view to the one attributed to working-class mothers, but at critiquing the overall reformist perspective.
- (E) This is the correct answer. The women historians' observations point out the contradiction in the traditional view that child labor reforms were universally supported by women reformers.

Step 3: Conclusion.

The correct answer is (E), as it reflects the passage's critique of the traditional view of child labor reforms.

Quick Tip

When analyzing the purpose of a statement, identify whether it is providing evidence for, questioning, or challenging an existing viewpoint.

15. The passage suggests that which of the following was a reason for the difference of opinion between working-class mothers and women reformers on the issue of child labor?

- (A) Reformers' belief that industrial home work was preferable to child labor outside the home
- (B) Reformers' belief that child labor laws should pertain to working conditions but not to pay
- (C) Working-class mothers' resentment at reformers' attempts to interfere with their parenting
- (D) Working-class mothers' belief that child labor was an inhumane practice
- (E) Working-class families' need for every employable member of their families to earn money

Correct Answer: (E) Working-class families' need for every employable member of their families to earn money

Solution:**Step 1: Understanding the context.**

The passage emphasizes that working-class families, facing financial struggles, relied on the wages of all family members, including children, to survive. This need for income is a key factor in their opposition to child labor laws, which reformers did not fully account for.

Step 2: Analyzing the options.

- (A) While reformers may have had beliefs about industrial home work, this is not the central reason for the differing opinions on child labor.
- (B) The passage focuses on the need for income, not just on working conditions or pay.
- (C) While there may have been resentment, the passage emphasizes the economic need of families over personal resentment.
- (D) The belief that child labor was inhumane does not address the financial aspect of working-class families' opposition.
- (E) This is the correct answer. The passage highlights that working-class families needed every member to earn money, which led to their opposition to child labor laws.

Step 3: Conclusion.

The correct answer is (E), as it best reflects the economic realities faced by working-class families.

Quick Tip

When evaluating historical perspectives, consider the economic context that shapes the views and decisions of different social groups.

16. The author of the passage asserts which of the following about women reformers who tried to abolish child labor?

- (A) They alienated working-class mothers by attempting to enlist them in agitating for progressive causes.
- (B) They underestimated the prevalence of child labor among the working classes.
- (C) They were correct in their conviction that child labor was deplorable but shortsighted about the impact of child labor legislation on working-class families.
- (D) They were aggressive in their attempts to enforce child labor legislation, but were unable to prevent working-class families from circumventing them.
- (E) They were prevented by their nearly total disenfranchisement from making significant progress in child labor reform.

Correct Answer: (C) They were correct in their conviction that child labor was deplorable but shortsighted about the impact of child labor legislation on working-class families.

Solution:

Step 1: Understanding the context.

The author argues that although the reformers were right about the inhumanity of child labor, they failed to consider the economic realities of working-class families, leading to an unintended negative impact on those families.

Step 2: Analyzing the options.

- (A) While reformers may have alienated working-class mothers, the focus is on their failure to understand the economic situation.
- (B) The passage does not emphasize that reformers underestimated child labor but rather focused on their misunderstanding of its economic consequences.
- (C) This is the correct answer. The passage asserts that while reformers were correct about the exploitation of child labor, they did not consider the economic needs of working-class families.
- (D) While the passage mentions efforts to enforce laws, it is not the primary focus of the passage, which is on the economic misunderstanding.
- (E) The passage does not focus on the reformers' disenfranchisement, but on their failure to understand the broader implications of their actions.

Step 3: Conclusion.

The correct answer is (C), as it captures the author's critique of the reformers' narrow focus on child labor without considering its economic impact.

Quick Tip

When assessing historical figures or movements, consider both their ideals and the practical implications of their actions.

17. According to the passage, one of the most striking achievements of white middle-class women reformers during the Progressive Era was

- (A) gaining the right to vote in school elections
- (B) mobilizing working-class women in the fight against child labor
- (C) uniting women of different classes in grassroots activism
- (D) improving the economic conditions of working-class families
- (E) improving women's and children's working conditions

Correct Answer: (E) improving women's and children's working conditions

Solution:

Step 1: Understanding the context.

The passage discusses the successes of middle-class women reformers, particularly in improving working conditions for women and children during the Progressive Era.

Step 2: Analyzing the options.

- (A) Gaining the right to vote is not mentioned as a striking achievement in the passage.
- (B) While working-class women were involved in the fight against child labor, the passage highlights the focus on improving working conditions, not just mobilizing women.
- (C) The passage does not focus on uniting women of different classes, but rather on the specific improvements made.
- (D) The passage does not focus on improving economic conditions directly, but on working conditions.
- (E) This is the correct answer, as the passage highlights the reformers' efforts to improve working conditions for women and children, which was a significant achievement.

Step 3: Conclusion.

The correct answer is (E), as it reflects the main achievements of women reformers during the Progressive Era as described in the passage.

Quick Tip

When evaluating historical achievements, focus on the specific outcomes discussed in the passage, such as tangible reforms in working conditions.

18. Vasquez-Morrell Assurance specializes in insuring manufacturers. Whenever a policyholder makes a claim, a claims adjuster determines the amount that Vasquez-Morrell is obligated to pay. Vasquez-Morrell is cutting its staff of claims adjusters by 15 percent. To ensure that the company's ability to handle claims promptly is affected as little as possible by the staff cuts, consultants recommend that Vasquez-Morrell lay off those adjusters who now take longest, on average, to complete work on claims assigned to them.

Which of the following, if true, most seriously calls into question the consultants' criterion for selecting the staff to be laid off?

- (A) If the time that Vasquez-Morrell takes to settle claims increases significantly, it could lose business to other insurers.
- (B) Supervisors at Vasquez-Morrell tend to assign the most complex claims to the most capable adjusters.

- (C) At Vasquez-Morrell, no insurance payments are made until a claims adjuster has reached a final determination on the claim.
- (D) There are no positions at Vasquez-Morrell that currently employ the adjusters who have the longest time to complete claims.
- (E) The premiums that Vasquez-Morrell currently charges are lower than those charged by its competitors.

Correct Answer: (B) Supervisors at Vasquez-Morrell tend to assign the most complex claims to the most capable adjusters.

Solution:

Step 1: Understanding the consultants' criterion.

The consultants suggest laying off adjusters who take the longest time to settle claims, assuming that those who take longer are less efficient. However, if the more complex claims are assigned to more capable adjusters, it could mean that the adjusters who take longer are actually the most capable, and laying them off could hurt the company's ability to handle complex claims.

Step 2: Analyzing the options.

- (A) While losing business is a concern, it does not directly address the flaw in the consultants' criterion for selecting which staff to lay off.
- (B) This is the correct answer. If the most complex claims are assigned to the most capable adjusters, those adjusters would naturally take longer, suggesting that the consultants' criterion may lead to the removal of the most skilled workers.
- (C) This is irrelevant because it pertains to the payment structure, not the efficiency of the claims adjusters.
- (D) If there are no such positions, the consultants' recommendation is moot, but it doesn't address the flaw in the criterion.
- (E) The price of premiums does not relate to the criterion used for selecting claims adjusters to be laid off.

Step 3: Conclusion.

The correct answer is (B), as it challenges the assumption that those who take longer are less efficient, showing that they might actually be the most capable adjusters.

Quick Tip

When evaluating recommendations, consider whether they account for the complexity of the work or just raw efficiency metrics.

19. Prolonged spells of hot, dry weather at the end of the grape-growing season typically reduce a vineyard's yield, because the grapes stay relatively small. In years with such weather, wine producers can make only a relatively small quantity of wine from a given area of vineyards. Nonetheless, in regions where wine producers generally grow their own grapes, analysts typically expect a long, hot, dry spell late in the growing season to result in increased revenues for local wine producers.

Which of the following, if true, does most justify the analysts' expectation?

- (A) The lower a vineyard's yield, the less labor is required to harvest the grapes.
- (B) Long, hot, dry spells at the beginning of the grape-growing season are rare, but they can have a devastating effect on a vineyard's yield.
- (C) Grapes grown for wine production are typically made into wine at or near the vineyard in which they were grown.
- (D) When hot, dry spells are followed by heavy rains, the rains frequently destroy grape crops.
- (E) Grapes that have matured in hot, dry weather make significantly better wine than ordinary grapes.

Correct Answer: (C) Grapes grown for wine production are typically made into wine at or near the vineyard in which they were grown.

Solution:

Step 1: Understanding the analysts' expectation.

The analysts expect that a prolonged dry spell will increase revenues for local wine producers. This expectation makes sense if the wine made from grapes grown in the local vineyard is more valuable than the wine made from grapes grown elsewhere.

Step 2: Analyzing the options.

- (A) This is not relevant to the analysts' expectation. The amount of labor required does not directly influence the revenue increase expected from local wine production.
- (B) This does not support the analysts' expectation, as it discusses the rare effect of early dry spells, not late-season dry spells.
- (C) This is the correct answer. If grapes grown locally are typically made into wine locally, the increase in the quantity of wine made from local grapes would contribute to higher local revenues.
- (D) This contradicts the premise of the question, as it talks about the negative effects of heavy rain, which is not the focus of the analysts' expectation.
- (E) While this could affect the quality of the wine, the focus of the passage is on local wine production, not the quality of the wine itself.

Step 3: Conclusion.

The correct answer is (C), as it directly supports the analysts' expectation that local wine production will result in increased revenues during dry spells.

Quick Tip

When evaluating economic expectations, focus on how local conditions impact the production and sale of goods, especially when local production adds value.

20. In the past, most children who went sledding in the winter snow in Verland used wooden sleds with runners and steering bars. Ten years ago, smooth plastic sleds became popular; they go faster than wooden sleds but are harder to steer and slow. The concern that plastic sleds are more dangerous is clearly borne out by the fact that the number of children injured while sledding was much higher last winter than it was 10 years ago.

Which of the following, if true in Verland, most seriously undermines the force of the evidence cited?

- (A) A few children still use traditional wooden sleds.
- (B) Very few children wear any kind of protective gear, such as helmets, while sledding.
- (C) Plastic sleds can be used in a much wider variety of snow conditions than wooden sleds can.
- (D) Most sledding injuries occur when a sled collides with a tree, a rock, or another sled.
- (E) Because the traditional wooden sleds can carry more than one rider, an accident involving a wooden sled can result in several children being injured.

Correct Answer: (D) Most sledding injuries occur when a sled collides with a tree, a rock, or another sled.

Solution:

Step 1: Understanding the concern.

The concern about the dangers of plastic sleds is based on an increase in the number of sledding injuries. However, if most injuries occur due to collisions with objects, not the sled type, the evidence connecting plastic sleds to higher injury rates may be less compelling.

Step 2: Analyzing the options.

- (A) This doesn't directly address the concern about the type of sled but simply reflects the continued use of wooden sleds.
- (B) While this suggests a lack of safety, it doesn't directly undermine the link between plastic sleds and injury rates.
- (C) This suggests that plastic sleds can be used in more conditions, but doesn't explain the increase in injuries.
- (D) This is the correct answer. If most injuries are caused by collisions with objects, rather than the type of sled, it weakens the argument that plastic sleds are inherently more dangerous.
- (E) This option discusses the number of children involved in an accident, but doesn't directly address the cause of the injuries.

Step 3: Conclusion.

The correct answer is (D), as it suggests that injuries are caused by factors unrelated to the type of sled.

Quick Tip

When evaluating arguments about causality, consider whether the proposed cause actually explains the observed effects.

21. Metal rings recently excavated from seventh-century settlements in the western part of Mexico were made using the same metallurgical techniques as those used by Ecuadorian artisans before and during that period. These techniques are sufficiently complex to make their independent development in both areas unlikely. Since the people of these two areas were in cultural contact,

archaeologists hypothesize that the metallurgical techniques used to make the rings found in Mexico were learned by Mexican artisans from Ecuadorian counterparts.

Which of the following would it be most useful to establish in order to evaluate the archaeologists' hypothesis?

- (A) Whether metal objects were traded from Ecuador to western Mexico during the seventh century
- (B) Whether travel between western Mexico and Ecuador in the seventh century would have been primarily by land or by sea
- (C) Whether artisans from western Mexico could have learned complex metallurgical techniques from their Ecuadorian counterparts without actually leaving western Mexico
- (D) Whether metal tools were used in the seventh-century settlements in western Mexico
- (E) Whether any of the techniques used in the manufacture of the metal rings found in western Mexico are still practiced among artisans in Ecuador today

Correct Answer: (C) Whether artisans from western Mexico could have learned complex metallurgical techniques from their Ecuadorian counterparts without actually leaving western Mexico.

Solution:

Step 1: Understanding the archaeologists' hypothesis.

The hypothesis suggests that Mexican artisans learned the complex metallurgical techniques from Ecuadorian counterparts. To evaluate this hypothesis, it's important to consider whether these techniques could have been learned without direct contact between the two regions.

Step 2: Analyzing the options.

- (A) While trade could be relevant, it doesn't directly address whether the techniques were learned through cultural contact.
- (B) Whether travel was by land or sea does not directly affect the likelihood of learning metallurgical techniques.
- (C) This is the correct answer. To evaluate the hypothesis, it's important to determine whether it was possible for Mexican artisans to learn the techniques without direct contact.
- (D) This does not directly address the question of learning metallurgical techniques, but rather focuses on the use of metal tools.
- (E) While this is an interesting point, it doesn't directly address how the techniques were learned by the Mexican artisans.

Step 3: Conclusion.

The correct answer is (C), as it addresses the key question of whether learning could occur without direct contact.

Quick Tip

When evaluating hypotheses, consider what evidence would most directly support or challenge the proposed explanation.

22. Following several years of declining advertising sales, the Greenville Times reorganized its advertising sales force. Before reorganization, the sales force was organized geographically, with some sales representatives concentrating on city-center businesses and others concentrating on different outlying regions. The reorganization attempted to increase the sales representatives' knowledge of clients' businesses by having each sales representative deal with only one type of industry or of retailing. After the reorganization, revenue from advertising sales increased.

In assessing whether the improvement in advertising sales can properly be attributed to the reorganization, it would be most helpful to find out which of the following?

- (A) What proportion of the total revenue of the Greenville Times is generated by advertising sales?
- (B) Has the circulation of the Greenville Times increased substantially in the last two years?
- (C) Among all the types of industry and retailing that use the Greenville Times as an advertising vehicle, which type accounts for the largest proportion of the newspaper's advertising sales?
- (D) Do any clients of the sales representatives of the Greenville Times have a standing order with the Times for a fixed amount of advertising per month?
- (E) Among the advertisers in the Greenville Times, are there more types of retail business or more types of industrial business?

Correct Answer: (A) What proportion of the total revenue of the Greenville Times is generated by advertising sales?

Solution:

Step 1: Understanding the reorganization's impact.

The reorganization aimed to improve advertising sales by changing the structure of the sales force. To evaluate whether this led to an increase in advertising revenue, we need to assess what portion of the revenue is from advertising.

Step 2: Analyzing the options.

- (A) This is the correct answer. To assess the impact of the reorganization, it is crucial to know what proportion of total revenue is from advertising to determine if the increase in sales is truly from the changes in the sales force.
- (B) This is not directly relevant. An increase in circulation might influence revenue, but it does not directly show whether the reorganization was the cause of increased advertising sales.
- (C) While this would be helpful, it doesn't directly assess the impact of the reorganization on overall advertising revenue.
- (D) This does not address the overall impact of the reorganization but focuses on specific clients.
- (E) This is not relevant. The type of business is not the central factor in assessing the effectiveness of the reorganization.

Step 3: Conclusion.

The correct answer is (A), as it provides the most relevant information to assess the reorganization's impact on advertising revenue.

Quick Tip

When evaluating the success of a change in business strategy, focus on the key metrics directly tied to the change's intended impact.

23. Motorists in a certain country frequently complain that traffic congestion is much worse now than it was 20 years ago. No real measure of how much traffic congestion there was 20 years ago exists, but the motorists' complaints are almost certainly unwarranted. The country's highway capacity has tripled in the last twenty years, thanks to a vigorous highway construction program, whereas the number of automobiles registered in the country has increased by only 75 percent. Which of the following, if true, most seriously weakens the argument?

- (A) Most automobile travel is local, and the networks of roads and streets in the country's settled areas have changed little over the last 20 years.
- (B) Gasoline prices are high, and miles traveled per car per year have not changed much over the last 20 years.
- (C) The country's urban centers have well-developed public transit systems that carry most of the people who commute into those centers.
- (D) The average age of automobiles registered in the country is lower now than it was 20 years ago.
- (E) Radio stations have long been broadcasting regular traffic reports that inform motorists about traffic congestion.

Correct Answer: (A) Most automobile travel is local, and the networks of roads and streets in the country's settled areas have changed little over the last 20 years.

Solution:

Step 1: Understanding the argument.

The argument claims that despite the increase in highway capacity, motorists' complaints about congestion are unwarranted. However, the local nature of traffic and unchanged roads could suggest that congestion has not been alleviated by the construction program.

Step 2: Analyzing the options.

- (A) This is the correct answer. If most travel is local and roads in settled areas have not changed, the expansion of highway capacity may not have addressed congestion in urban areas.
- (B) While high gasoline prices might limit travel, it doesn't address the underlying issue of congestion.
- (C) Public transit might reduce the number of cars, but it doesn't directly challenge the claim about traffic congestion.
- (D) The age of automobiles does not directly address the issue of traffic congestion or its relationship to highway capacity.
- (E) Traffic reports do not reduce congestion; they only provide information about it.

Step 3: Conclusion.

The correct answer is (A), as it directly challenges the assumption that increased highway capacity addresses traffic congestion in urban areas.

Quick Tip

When evaluating arguments about changes in infrastructure, consider whether the changes directly address the problem at hand.

24. The percentage of households with an annual income of more than 40,000 is higher in Merton County than in Sommer County. However, the percentage of households with an annual income of more than 60,000 is higher in Sommer County.

If the statements above are true, which of the following must also be true?

- (A) The percentage of households with an annual income of 80,000 is higher in Sommer County than in Merton County.
- (B) Merton County has the second highest percentage of households with an annual income of 60,000 or more.
- (C) Some households in Merton County have an annual income between 40,000 and 60,000.
- (D) The number of households with an annual income of more than 40,000 is greater in Merton County than in Sommer County.
- (E) Average annual household income is higher in Sommer County than in Merton County.

Correct Answer: (C) Some households in Merton County have an annual income between 40,000 and 60,000.

Solution:

Step 1: Understanding the implications.

The statements suggest that Merton County has more households earning more than 40,000, but fewer households earning 60,000 or more. This implies that some of those households must fall into the 40,000 to 60,000 range.

Step 2: Analyzing the options.

- (A) This does not follow from the given information. It's not stated that the percentage of households with 80,000 income is higher in Sommer County.
- (B) The passage does not provide enough information to conclude this.
- (C) This is the correct answer. Since the percentage of households with 40,000 + is higher in Merton County, but fewer households earn 60,000+, some must earn between 40,000 and 60,000.
- (D) This is not supported by the passage. The statement only compares percentages, not the total number of households.
- (E) The passage does not provide information on average income.

Step 3: Conclusion.

The correct answer is (C), as it logically follows from the statements that some households must fall between the 40,000 and 60,000 range.

Quick Tip

When evaluating statements about income distribution, consider the relative percentages across different income ranges.

25. Tiger beetles are such fast runners that they can capture virtually any running insect. However, when running toward an insect, a tiger beetle will intermittently stop and, when a moment later, resume its attack. Perhaps the beetles cannot maintain their pace and must pause for a moment's rest; but an alternative hypothesis is that while running, tiger beetles are unable to adequately process the resulting rapidly changing visual information and so quickly go blind and stop.

Which of the following, if discovered in experiments using artificially moved prey insects, would support one of the two hypotheses and undermine the other?

- (A) When a prey insect is moved directly toward a beetle that has been chasing it, the beetle immediately stops and runs away without its usual intermittent stopping.
- (B) In pursuing a swerving insect, a beetle alters its course while running and its pauses become more frequent as the chase progresses.
- (C) In pursuing a moving insect, a beetle usually responds immediately to changes in the insect's direction, and it pauses equally frequently whether the chase is up or down an incline.
- (D) If, when a beetle pauses, it has not gained on the insect it is pursuing, the beetle generally ends its pursuit.
- (E) The faster a beetle pursues an insect fleeing directly away from it, the more frequently the beetle stops.

Correct Answer: (E) The faster a beetle pursues an insect fleeing directly away from it, the more frequently the beetle stops.

Solution:

Step 1: Understanding the two hypotheses.

The first hypothesis suggests that beetles pause because they need rest, while the second suggests that they cannot process the visual information effectively. The latter would predict that as the beetle runs faster, the frequency of stopping would increase.

Step 2: Analyzing the options.

- (A) This would support the first hypothesis but not the second, as it suggests the beetle stops for a rest when the prey moves directly toward it.
- (B) This does not address the idea of running speed affecting stopping frequency, and would not help either hypothesis.
- (C) This demonstrates that the beetle is responsive to the insect's direction, but does not speak to the frequency of stopping in relation to speed.
- (D) This offers insight into the beetle's pursuit behavior, but it does not address how running speed affects stopping frequency.
- (E) This supports the second hypothesis, as it shows that faster speeds lead to more frequent pauses, consistent with the idea that the beetles are overwhelmed by the rapid visual changes.

Step 3: Conclusion.

The correct answer is (E), as it supports the second hypothesis and undermines the first.

Quick Tip

When evaluating hypotheses based on behavior, consider how changes in conditions (such as speed) directly affect the behavior.

26. Guillemots are birds of Arctic regions. They feed on fish that gather beneath thin sheets of floating ice, and they nest on nearby land. Guillemots need 80 consecutive snow-free days in a year to raise their chicks, so until average temperatures in the Arctic began to rise recently, the guillemots' range was limited to the southernmost Arctic coast. Therefore, if the warming continues, the guillemots' range will probably be enlarged by being extended northward along the coast.

Which of the following, if true, most seriously weakens the argument?

- (A) Even if the warming trend continues, there will still be years in which guillemot chicks are killed by an unusually early snow.
- (B) If the Arctic warming continues, guillemots' current predators are likely to succeed in extending their own range farther north.
- (C) Guillemots nest in coastal areas, where temperatures are generally higher than in inland areas.
- (D) If the Arctic warming continues, much of the thin ice in the southern Arctic will disappear.
- (E) The fish that guillemots eat are currently preyed on by a wider variety of predators in the southernmost Arctic regions than they are farther north.

Correct Answer: (B) If the Arctic warming continues, guillemots' current predators are likely to succeed in extending their own range farther north.

Solution:

Step 1: Understanding the argument.

The argument is based on the assumption that if the Arctic warms, guillemots will extend their range northward. However, if their predators can also extend their range, this could counterbalance the expansion of the guillemots' range.

Step 2: Analyzing the options.

- (A) This does not weaken the argument significantly, as it only suggests that snow may still impact the guillemots, but it doesn't address the expansion of their range.
- (B) This is the correct answer. If guillemots' predators can extend their range as well, it would reduce the effectiveness of the guillemots' range expansion, making this a serious counterpoint to the argument.
- (C) This fact is not directly relevant to whether the guillemots' range will expand.
- (D) The disappearance of thin ice does not directly undermine the argument about range expansion; it might only limit the guillemots' habitat in certain areas.
- (E) This introduces a potential issue for the guillemots but doesn't directly address the northward range expansion.

Step 3: Conclusion.

The correct answer is (B), as it introduces a competing factor that could prevent the guillemots' range from expanding northward.

Quick Tip

When evaluating environmental arguments, consider the interactions between different species and how changes affect both competitors and prey.

27. Some batches of polio vaccine used around 1960 were contaminated with SV40, a virus that in monkeys causes various cancers. Some researchers now claim that this contamination caused some cases of a certain cancer in humans, mesothelioma. This claim is not undercut by the fact that a very careful survey made in the 1960s of people who had received the contaminated vaccine found no elevated incidence of any cancer, since

- (A) Most cases of mesothelioma are caused by exposure to asbestos
- (B) In some countries, there was no contamination of the vaccine
- (C) SV40 is widely used in laboratories to produce cancers in animals
- (D) Mesotheliomas take several decades to develop
- (E) Mesothelioma was somewhat less common in 1960 than it is now

Correct Answer: (D) Mesotheliomas take several decades to develop.

Solution:

Step 1: Understanding the argument.

The argument presents a claim about polio vaccines causing cancer, but the claim is challenged by the survey showing no elevated cancer rates. The key issue is the long latency period for mesothelioma.

Step 2: Analyzing the options.

- (A) This is relevant to mesothelioma but does not address the long latency period of the cancer.
- (B) The fact that some countries didn't have contaminated vaccines doesn't impact the claim that the contaminated vaccines could have caused cancer.
- (C) This does not address the issue of the long latency of mesothelioma and does not support the claim.
- (D) This is the correct answer. Mesotheliomas have a long development period, so the survey conducted in the 1960s may not have detected the cancers that would develop many years later.
- (E) This doesn't address the key issue of cancer development latency.

Step 3: Conclusion.

The correct answer is (D), as it explains why the survey from the 1960s may not have detected cases of mesothelioma caused by the contaminated vaccine.

Quick Tip

When evaluating long-term health studies, consider the latency period of diseases that take years or decades to develop.

28. Gortland has long been narrowly self-sufficient in both grain and meat. However, as per capita income in Gortland has risen toward the world average, per capita consumption of meat has also risen toward the world average, and it takes several pounds of grain to produce one pound of meat. Therefore, since per capita income continues to rise, whereas domestic grain production will not increase, Gortland will soon have to import either grain or meat or both. Which of the following is an assumption on which the argument depends?

- (A) The total acreage devoted to grain production in Gortland will soon decrease.
- (B) Importing either grain or meat will not result in a significantly higher percentage of Gortlanders' incomes being spent on food than is currently the case.
- (C) The per capita consumption of meat in Gortland is increasing at roughly the same rate across all income levels.
- (D) The per capita income of meat producers in Gortland is rising faster than the per capita income of grain producers.
- (E) People in Gortland who increase their consumption of meat will not radically decrease their consumption of grain.

Correct Answer: (E) People in Gortland who increase their consumption of meat will not radically decrease their consumption of grain.

Solution:

Step 1: Understanding the argument.

The argument assumes that Gortland's increased consumption of meat will not result in a drastic reduction in the consumption of grain. This is necessary for the conclusion that Gortland will soon need to import either grain or meat, because it assumes that both will be in demand.

Step 2: Analyzing the options.

- (A) The total acreage devoted to grain production is not discussed in the argument; it is not directly relevant.
- (B) This is important for the argument but is not an assumption; it suggests a potential consequence but doesn't assume it as a basis for the argument.
- (C) The assumption is that Gortlanders are consuming more meat overall, but the argument doesn't depend on the rate at which different income levels consume it.
- (D) The income of meat producers is not central to the argument's claim about food imports.
- (E) This is the correct answer. The argument assumes that increasing meat consumption will not significantly decrease grain consumption, which justifies the need for imports.

Step 3: Conclusion.

The correct answer is (E), as it is the core assumption that underpins the argument.

Quick Tip

When analyzing arguments, identify assumptions about the relationships between different variables that support the conclusion.

29. The Hazelton coal-processing plant is a major employer in the Hazelton area, but national environmental regulations will force it to close if it continues to use old, polluting processing methods. However, to update the plant to use newer, cleaner methods would be so expensive that the plant will close unless it receives the tax break it has requested. In order to prevent a major increase in local unemployment, the Hazelton government is considering granting the plant's request.

Which of the following would be most important for the Hazelton government to determine before deciding whether to grant the plant's request?

- (A) Whether the company that owns the plant would open a new plant in another area if the present plant were closed
- (B) Whether the plant would employ far fewer workers when updated than it does now
- (C) Whether the level of pollutants presently being emitted by the plant is high enough to constitute a health hazard for local residents
- (D) Whether the majority of the coal processed by the plant is sold outside the Hazelton area
- (E) Whether the plant would be able to process more coal when updated than it does now

Correct Answer: (B) Whether the plant would employ far fewer workers when updated than it does now

Solution:

Step 1: Understanding the context.

The government's decision to grant the tax break depends on the potential for job losses due to the modernization of the plant. If the new methods reduce employment, the government may need to reconsider its decision.

Step 2: Analyzing the options.

- (A) This is not directly relevant to the issue of local unemployment.
- (B) This is the correct answer. Determining if the updated plant would employ fewer workers is essential to evaluating the impact on local unemployment.
- (C) While health concerns are important, the focus of the decision is on employment and economic impact.
- (D) This doesn't directly relate to the employment issue at hand.
- (E) This is not directly relevant to the decision about employment and unemployment.

Step 3: Conclusion.

The correct answer is (B), as it addresses the key concern of local unemployment.

Quick Tip

When making policy decisions, consider the broader economic and social impacts, such as employment and public health.

30. A physically active lifestyle has been shown to help increase longevity. In the Wistar region of Bellaria, the average age at death is considerably higher than in any other part of the country. Wistar is the only mountainous part of Bellaria. A mountainous terrain makes even such basic activities as walking relatively strenuous; it essentially imposes a physically active lifestyle on people. Clearly, this circumstance explains the long lives of people in Wistar. Which of the following, if true, most seriously weakens the argument?

- (A) In Bellaria all medical expenses are paid by the government, so that personal income does not affect the quality of health care a person receives.
- (B) The Wistar region is one of Bellaria's least populated regions.
- (C) Many people who live in the Wistar region have moved there in middle age or upon retirement.
- (D) The many opportunities for hiking, skiing, and other outdoor activities that Wistar's mountains offer make it a favorite destination for vacationing Bellarians.
- (E) Per capita spending on recreational activities is no higher in Wistar than it is in other regions of Bellaria.

Correct Answer: (E) Per capita spending on recreational activities is no higher in Wistar than it is in other regions of Bellaria.

Solution:

Step 1: Understanding the argument.

The argument suggests that the physical activity imposed by the mountainous terrain leads to greater longevity in Wistar. To weaken this argument, we need evidence that challenges the claim that physical activity is the cause of longevity.

Step 2: Analyzing the options.

- (A) While this provides a potential factor in health, it does not directly weaken the argument about physical activity and longevity in Wistar.
- (B) The population size doesn't directly weaken the argument about the impact of physical activity.
- (C) This suggests that many people move to Wistar in middle age or later, which could challenge the idea that physical activity over their lifetime is the main cause of longevity. However, it doesn't directly weaken the argument.
- (D) This suggests that outdoor activities are attractive to vacationers, but does not directly challenge the argument about physical activity and longevity.
- (E) This is the correct answer. If people in Wistar do not spend more on recreational activities than elsewhere, it suggests that physical activity may not be the main factor explaining their greater longevity.

Step 3: Conclusion.

The correct answer is (E), as it directly challenges the argument by suggesting that physical activity is not the key factor in explaining longevity.

Quick Tip

When evaluating causal claims, look for evidence that questions the proposed cause and suggests alternative explanations.

31. Cheever College offers several online courses via remote computer connection, in addition to traditional classroom-based courses. A study of student performance at Cheever found that, overall, the average student grade for online courses matched that for classroom-based courses. In this calculation of the average grade, course withdrawals were weighted as equivalent to a course failure, and the rate of withdrawal was much lower for students enrolled in classroom-based courses than for students enrolled in online courses. If the statements above are true, which of the following must also be true of Cheever College?

- (A) Among students who did not withdraw, students enrolled in online courses got higher grades, on average, than students enrolled in classroom-based courses.
- (B) The number of students enrolled per course at the start of the school term is much higher, on average, for the online courses than for the classroom-based courses.
- (C) There are no students who take both an online and a classroom-based course in the same school term.
- (D) Among Cheever College students with the best grades, a significant majority take online, rather than classroom-based, courses.
- (E) Courses offered online tend to deal with subject matter that is less challenging than that of classroom-based courses.

Correct Answer: (A) Among students who did not withdraw, students enrolled in online courses got higher grades, on average, than students enrolled in classroom-based courses.

Solution:

Step 1: Understanding the argument.

The argument indicates that students in online courses performed as well as students in classroom-based courses, and withdrawals were treated as failures. If withdrawals are much lower for classroom-based courses, it implies that the comparison for non-withdrawn students shows online students outperforming classroom-based students.

Step 2: Analyzing the options.

- (A) This is the correct answer. Given that the grade calculation treats withdrawals as failures, the fact that withdrawal rates differ suggests online students must have outperformed classroom students.
- (B) The number of students enrolled does not directly impact the average grades.
- (C) This is not a necessary conclusion. Students can take both types of courses.
- (D) This is irrelevant to the argument about the grades in online vs. classroom-based courses.

- (E) The argument does not claim that the subject matter in online courses is easier, only that performance is similar between the two course types.

Step 3: Conclusion.

The correct answer is (A), as it directly follows from the given data.

Quick Tip

When analyzing educational performance data, always consider how withdrawals and other factors like course difficulty might influence the results.

32. For years the beautiful Renaissance buildings in Palitto have been damaged by exhaust from the many tour buses that come to the city. There has been little parking space, so most buses have idled at the curb during each stop on their tour, and idling produces as much exhaust as driving. The city has now provided parking that accommodates a third of the tour buses, so damage to Palitto's buildings from the buses' exhaust will diminish significantly.

Which of the following, if true, most strongly supports the argument?

- (A) The exhaust from Palitto's few automobiles is not a significant threat to Palitto's buildings.
- (B) Palitto's Renaissance buildings are not threatened by pollution other than engine exhaust.
- (C) Tour buses typically spend less than one-quarter of the time they are in Palitto transporting passengers from one site to another.
- (D) More tourists come to Palitto by tour bus than by any other single means of transportation.
- (E) Some of the tour buses that are unable to find parking drive around Palitto while their passengers are visiting a site.

Correct Answer: (B) Palitto's Renaissance buildings are not threatened by pollution other than engine exhaust.

Solution:

Step 1: Understanding the argument.

The argument claims that the new parking for tour buses will reduce damage from exhaust. To support this, we need to show that the damage comes primarily from engine exhaust, not from other sources of pollution.

Step 2: Analyzing the options.

- (A) This is not relevant to the specific impact of tour bus exhaust.
- (B) This is the correct answer. If the buildings are not threatened by other forms of pollution, the reduction of bus exhaust will likely lead to a significant decrease in damage.
- (C) This does not directly support the argument about exhaust damage.
- (D) While more tourists may come by bus, it doesn't address the specific issue of exhaust damage.
- (E) This introduces a new factor but does not weaken or strengthen the argument about exhaust damage.

Step 3: Conclusion.

The correct answer is (B), as it supports the idea that reducing bus exhaust will significantly reduce building damage.

Quick Tip

When analyzing arguments about pollution, consider whether the source of the pollution is properly addressed in the proposed solution.

33. During the 1980s and 1990s, the annual number of people who visited the Sordellian Mountains increased continually, and many new ski resorts were built. Over the same period, however, the number of visitors to ski resorts who were caught in avalanches decreased, even though there was no reduction in the annual number of avalanches in the Sordellian Mountains.

Which of the following, if true in the Sordellian Mountains during the 1980s and 1990s, most helps to explain the decrease?

- (A) Avalanches were most likely to happen when a large new snowfall covered an older layer of snow.
- (B) Avalanches destroyed at least some buildings in the Sordellian Mountains in every year.
- (C) People planning new ski slopes and other resort facilities used increasingly accurate information about which locations are likely to be in the path of avalanches.
- (D) The average length of stay for people visiting the Sordellian Mountains increased slightly.
- (E) Construction of new ski resorts often led to the clearing of wooded areas that had helped to prevent avalanches.

Correct Answer: (C) People planning new ski slopes and other resort facilities used increasingly accurate information about which locations are likely to be in the path of avalanches.

Solution:**Step 1: Understanding the situation.**

The argument explains that despite the same number of avalanches, fewer people were caught in them. The most likely explanation is that planners used better information to avoid areas prone to avalanches.

Step 2: Analyzing the options.

- (A) This is not related to the decrease in people caught in avalanches, but rather to the timing of avalanches.
- (B) While this is true, it does not explain the specific decrease in people caught in avalanches.
- (C) This is the correct answer. Improved knowledge of avalanche-prone areas would lead to safer ski slopes, reducing the number of people caught in avalanches.
- (D) While longer stays might increase exposure, it doesn't explain the decreased incidents of people being caught in avalanches.
- (E) Clearing wooded areas might affect avalanche conditions but doesn't directly address the decrease in incidents.

Step 3: Conclusion.

The correct answer is (C), as it explains how improved planning and knowledge could reduce the risk to visitors.

Quick Tip

When evaluating explanations for a trend, consider whether the explanation directly addresses the key changes that occurred.

34. A year ago, Dietz Foods launched a yearlong advertising campaign for its canned tuna. Last year Dietz sold 12 million cans of tuna compared to the 10 million sold during the previous year, an increase directly attributable to new customers brought in by the campaign. Profits from the additional sales, however, were substantially less than the cost of the advertising campaign. Clearly, therefore, the campaign did nothing to further Dietz's economic interests. Which of the following, if true, most seriously weakens the argument?

- (A) Sales of canned tuna account for a relatively small percentage of Dietz Foods' profits.
- (B) Most of the people who bought Dietz's canned tuna for the first time as a result of the campaign were already loyal customers of other Dietz products.
- (C) A less expensive advertising campaign would have brought in significantly fewer new customers for Dietz's canned tuna than did the campaign Dietz Foods launched last year.
- (D) Dietz made money on sales of canned tuna last year.
- (E) In each of the past five years, there was a steep, industry-wide decline in sales of canned tuna.

Correct Answer: (C) A less expensive advertising campaign would have brought in significantly fewer new customers for Dietz's canned tuna than did the campaign Dietz Foods launched last year.

Solution:

Step 1: Understanding the argument.

The argument concludes that the advertising campaign did not benefit Dietz Foods because profits from the additional sales were less than the cost of the campaign. To weaken the argument, we need evidence that the campaign was effective despite the costs.

Step 2: Analyzing the options.

- (A) This does not address the effectiveness of the advertising campaign or its impact on Dietz's overall economic interests.
- (B) This weakens the argument by suggesting that the new customers were already loyal to Dietz products, so the campaign didn't attract new customers to canned tuna.
- (C) This is the correct answer. If the campaign was the most cost-effective way to bring in new customers, it would suggest that the cost of the campaign was justified by the number of new customers.
- (D) This is not relevant because the focus is on new customers brought in by the campaign.
- (E) This does not address the specific impact of the campaign on Dietz's tuna sales.

Step 3: Conclusion.

The correct answer is (C), as it shows that the campaign was the most effective way to attract new customers, justifying the cost.

Quick Tip

When evaluating the success of a campaign, consider whether the campaign was the most effective way to achieve the desired outcome.

35. Unlike the buildings in Mesopotamian cities, which were arranged haphazardly, the same basic plan was followed for all cities of the Indus Valley: with houses laid out on a north-south, east-west grid, and houses and walls were built of standard-size bricks.

Which of the following is the correct version of the sentence?

- (A) the buildings in Mesopotamian cities, which were arranged haphazardly, the same basic plan was followed for all cities of the Indus Valley: houses
- (B) the buildings in Mesopotamian cities, which were haphazard in arrangement, the same basic plan was used in all cities of the Indus Valley: houses
- (C) the arrangement of buildings in Mesopotamian cities, which were haphazard, the cities of the Indus Valley all followed the same basic plan: houses
- (D) Mesopotamian cities, in which buildings were arranged haphazardly, the cities of the Indus Valley all followed the same basic plan: houses
- (E) Mesopotamian cities, which had buildings that were arranged haphazardly, the same basic plan was used for all cities in the Indus Valley: houses that were

Correct Answer: (D) Mesopotamian cities, in which buildings were arranged haphazardly, the cities of the Indus Valley all followed the same basic plan: houses

Solution:**Step 1: Understanding the sentence structure.**

The sentence needs a version that logically compares the two cities' arrangements while maintaining clarity and grammatical accuracy. "Mesopotamian cities" must be correctly linked with the verb "followed."

Step 2: Analyzing the options.

- (A) This is incomplete and contains an error in punctuation.
- (B) The word "haphazard in arrangement" is awkward and unnecessary.
- (C) This is an awkward construction, and the sentence is too disjointed.
- (D) This is the correct answer because it properly links the two cities' arrangements and maintains correct syntax.
- (E) The phrasing "haphazardly arranged buildings" makes the sentence overly convoluted.

Step 3: Conclusion.

The correct answer is (D), which maintains grammatical clarity.

Quick Tip

When structuring comparisons, ensure that the two parts of the sentence are logically and grammatically connected.

36. New data from United States Forest Service ecologists show that for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, it saves seven dollars that would not be spent on having to extinguish big fires.

Which of the following, if true, most seriously weakens the argument?

- (A) that for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, it saves seven dollars that would not be spent on having to extinguish big fires.
- (B) for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, seven dollars are saved that would have been spent on extinguishing.
- (C) that for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel saves seven dollars on not having to extinguish.
- (D) for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, that it saves seven dollars that would have been spent on extinguishing big fires.
- (E) for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, seven dollars are saved that would not have been spent on extinguishing.

Correct Answer: (E) for every dollar spent on controlled small-scale burning, forest thinning, and the training of fire-management personnel, seven dollars are saved that would not have been spent on extinguishing.

Solution:

Step 1: Understanding the argument.

The argument claims that the investment in preventative measures saves money that would otherwise be spent on extinguishing fires. To weaken this argument, we need evidence that challenges the effectiveness or accuracy of these savings.

Step 2: Analyzing the options.

- (A) This is repetitive and doesn't provide new information to weaken the argument.
- (B) This rephrases the original statement but doesn't weaken it.
- (C) This slightly changes the structure but doesn't weaken the core claim.
- (D) This option does not change the meaning or provide evidence against the argument.
- (E) This is the correct answer. It implies that the amount saved is not directly related to big fires being extinguished, which weakens the argument about the effectiveness of the fire management strategy.

Step 3: Conclusion.

The correct answer is (E), as it introduces doubt about the savings from the measures.

Quick Tip

When assessing an argument, check if the evidence supports or challenges the central claim about effectiveness and efficiency.

37. Like the grassy fields and old pastures that the upland sandpiper needs for feeding and nesting when it returns in May after wintering in the Argentine Pampas, the sandpipers vanishing in the northeastern United States is a result of residential and industrial development and of changes in farming practices. Which of the following, if true in the Sordellian Mountains during the 1980s and 1990s, most helps to explain the decrease?

- (A) Avalanches were most likely to happen when a large new snowfall covered an older layer of snow.
- (B) Avalanches destroyed at least some buildings in the Sordellian Mountains in every year.
- (C) People planning new ski slopes and other resort facilities used increasingly accurate information about which locations are likely to be in the path of avalanches.
- (D) The average length of stay for people visiting the Sordellian Mountains increased slightly.
- (E) Construction of new ski resorts often led to the clearing of wooded areas that had helped to prevent avalanches.

Correct Answer: (C) People planning new ski slopes and other resort facilities used increasingly accurate information about which locations are likely to be in the path of avalanches.

Solution:

Step 1: Understanding the situation.

The argument presents a situation where avalanches have decreased in the Sordellian Mountains. To explain this decrease, we need evidence that shows the planning changes that helped prevent avalanches.

Step 2: Analyzing the options.

- (A) This provides a scenario for avalanche timing but doesn't explain the decrease.
- (B) While this is true, it doesn't explain the reduction in people caught in avalanches.
- (C) This is the correct answer. Better information about avalanche-prone areas would help prevent construction in those areas, leading to fewer people being caught in avalanches.
- (D) This doesn't address the core issue of safety and avalanche prevention.
- (E) This might increase avalanche risk, but doesn't address how planning led to fewer people being caught in avalanches.

Step 3: Conclusion.

The correct answer is (C), as it explains how better planning and information could have reduced the risk of avalanches.

Quick Tip

When analyzing environmental data, look for changes in behavior or planning that directly address the problem at hand.

38. The results of two recent unrelated studies support the idea that dolphins may share certain cognitive abilities with humans and great apes; the studies indicate dolphins as capable of recognizing themselves in mirrors—an ability that is often considered a sign of self-awareness—and to grasp spontaneously the concept of object permanence.

Which of the following, if true, most seriously weakens the argument?

- (A) dolphins as capable of recognizing themselves in mirrors—an ability that is often considered a sign of self-awareness—and to grasp spontaneously
- (B) dolphins' ability to recognize themselves in mirrors—an ability that is often considered a sign of self-awareness—and of spontaneously grasping
- (C) dolphins to be capable of recognizing themselves in mirrors—an ability that is often considered a sign of self-awareness—and to grasp spontaneously
- (D) that dolphins have the ability of recognizing themselves in mirrors—an ability that is often considered a sign of self-awareness—and spontaneously grasping
- (E) that dolphins are capable of recognizing themselves in mirrors—an ability that is often considered a sign of self-awareness—and of spontaneously grasping

Correct Answer: (B) dolphins' ability to recognize themselves in mirrors—an ability that is often considered a sign of self-awareness—and of spontaneously grasping

Solution:

Step 1: Understanding the argument.

The argument claims that dolphins show evidence of cognitive abilities like humans and great apes. To weaken the argument, we need to introduce evidence that challenges the claim about self-awareness or cognitive abilities.

Step 2: Analyzing the options.

- (A) This doesn't address the issue directly and doesn't weaken the argument.
- (B) This weakens the argument by suggesting a confusion or incorrect representation of the dolphin's abilities, which could undermine the claim.
- (C) This doesn't change the argument and provides a similar statement to the others.
- (D) This also doesn't weaken the argument; it's a similar statement.
- (E) This does not significantly weaken the argument.

Step 3: Conclusion.

The correct answer is (B), as it introduces a weakness in the representation of the dolphin's abilities.

Quick Tip

When evaluating scientific claims, be cautious about the specific wording that may change the interpretation of the results.

39. According to scholars, the earliest writing was probably not a direct rendering of speech, but was more likely to begin as a separate and distinct symbolic system of communication, and only later merged with spoken language. Which of the following is the correct version of the sentence?

- (A) was more likely to begin as
- (B) more than likely began as
- (C) more than likely beginning from
- (D) it was more than likely begun from
- (E) it was more likely that it began

Correct Answer: (A) was more likely to begin as

Solution:

Step 1: Understanding the sentence structure.

The sentence needs a construction that maintains clarity and reads logically. The phrase "more likely to begin as" is the most straightforward way to convey the intended meaning.

Step 2: Analyzing the options.

- (A) This is the correct version, as it logically fits the context and follows standard English usage.
- (B) This is grammatically awkward and less formal.
- (C) "Beginning from" introduces unnecessary complexity.
- (D) The phrase "begun from" is incorrect in this context.
- (E) "It was more likely that it began" is less concise and clear.

Step 3: Conclusion.

The correct answer is (A), as it best conveys the intended meaning in a concise manner.

Quick Tip

In academic writing, clarity and conciseness are essential. Ensure the sentence is both grammatically correct and straightforward.

40. In 1995 Richard Stallman, a well-known critic of the patent system, testified in Patent Office hearings that, to test the system, a colleague of his had managed to win a patent for one of Kirchhoff's laws, an observation about electric current first made in 1845 and now included in virtually every textbook of elementary physics.

Which of the following is the correct version of the sentence?

- (A) laws, an observation about electric current first made in 1845
- (B) laws, which was an observation about electric current first made in 1845 and it is
- (C) laws, namely, it was an observation about electric current first made in 1845 and
- (D) laws, an observation about electric current first made in 1845 and
- (E) laws, an observation about electric current first made in 1845, it is

Correct Answer: (D) laws, an observation about electric current first made in 1845 and

Solution:

Step 1: Understanding the sentence structure.

The sentence should maintain clarity, using the phrase “laws, an observation about electric current” as a non-restrictive clause to further explain the laws.

Step 2: Analyzing the options.

- (A) This option is grammatically correct but lacks clarity due to the conjunction “and” not clearly linking the explanation.
- (B) The phrase “it is” is redundant and incorrect.
- (C) This introduces unnecessary complexity with “namely,” which does not improve the sentence.
- (D) This is the correct answer, as it provides clear and concise information.
- (E) This option has unnecessary complexity with “it is.”

Step 3: Conclusion.

The correct answer is (D), as it maintains clarity and conciseness.

Quick Tip

When constructing explanations, keep the sentence clear and avoid unnecessary words or clauses.

41. Excavators at the Indus Valley site of Harappa in eastern Pakistan say the discovery of inscribed shards dating to circa 2800–2600 B.C. indicate their development of a Harappan writing system, the use of inscribed seals impressed into clay for marking ownership, and the standardization of weights for trade or taxation occurred many decades, if not centuries, earlier than was previously believed.

Which of the following is the correct version of the sentence?

- (A) indicate their development of a Harappan writing system, the use
- (B) indicate that the development of a Harappan writing system, using
- (C) indicates their development of a Harappan writing system, using
- (D) indicates the development of a Harappan writing system, their use
- (E) indicates that the development of a Harappan writing system, the use

Correct Answer: (E) indicates that the development of a Harappan writing system, the use

Solution:

Step 1: Understanding the sentence structure.

The sentence needs a structure that properly links the discovery to the various developments in Harappa. "Indicates that" is the most appropriate way to express this in clear, formal language.

Step 2: Analyzing the options.

- (A) This is incomplete and awkward.
- (B) This introduces unnecessary complexity with "using."
- (C) This option creates confusion by splitting the subject and the verb improperly.
- (D) This option disrupts the sentence's flow and creates grammatical issues.
- (E) This is the correct answer, as it properly links the developments in Harappa with the discoveries.

Step 3: Conclusion.

The correct answer is (E), as it provides clarity and a proper grammatical structure.

Quick Tip

When connecting clauses, ensure that the subject and verb are properly aligned for clarity and grammatical accuracy.

42. The Supreme Court has ruled that public universities can collect student activity fees even with students' objections to particular activities, so long as the groups they give money to will be chosen without regard to their views.

Which of the following is the correct version of the sentence?

- (A) with students' objections to particular activities, so long as the groups they give money to will be chosen without regard to their views
- (B) if they have objections to particular activities and the groups that are given the money are
- (C) if they object to particular activities, but the groups that the money is given to have to be
- (D) from students who object to particular activities, as long as the groups they give money to will be chosen without regard to their views
- (E) from students who object to particular activities, so long as the groups given money to will be chosen without regard to their views

Correct Answer: (A) with students' objections to particular activities, so long as the groups they give money to will be chosen without regard to their views

Solution:

Step 1: Understanding the sentence structure.

The sentence needs to convey the condition that student activity fees can be collected even if students object to particular activities, but the groups receiving the money should not be biased.

Step 2: Analyzing the options.

- (A) This is the correct and clear choice, as it properly conveys the condition for the collection of fees.
- (B) This option unnecessarily complicates the sentence.
- (C) This introduces unnecessary complexity and makes the sentence unclear.

- (D) This option has awkward phrasing with “from students who object.”
- (E) This option introduces a confusing clause and is not clear.

Step 3: Conclusion.

The correct answer is (A), as it is clear and direct in conveying the legal condition.

Quick Tip

When structuring legal or formal language, clarity is key. Avoid unnecessary complexity.

43. Despite the increasing number of women graduating from law school and passing bar examinations, the proportion of judges and partners at major law firms who are women has not risen to a comparable extent.

Which of the following is the correct version of the sentence?

- (A) the proportion of judges and partners at major law firms who are women have not risen to a comparable extent
- (B) the proportion of women judges and partners at major law firms have not risen comparably
- (C) the proportion of judges and partners at major law firms who are women has not risen comparably
- (D) yet the proportion of women judges and partners at major law firms has not risen comparably
- (E) yet the proportion of judges and partners at major law firms who are women has not risen comparably

Correct Answer: (C) the proportion of judges and partners at major law firms who are women has not risen comparably

Solution:

Step 1: Analyzing the sentence structure.

The phrase “the proportion of judges and partners” is singular, so the verb should be “has” and not “have.” This means the sentence needs to correctly reflect subject-verb agreement.

Step 2: Analyzing the options.

- (A) Incorrect subject-verb agreement: “the proportion” is singular, so “has” should be used instead of “have.”
- (B) This option incorrectly uses “have” for a singular subject and is awkward.
- (C) This is the correct answer. It maintains subject-verb agreement and uses “comparably” properly.
- (D) This is an unnecessary shift in structure and doesn’t improve clarity.
- (E) This option, while grammatically correct, is slightly less clear than option (C).

Step 3: Conclusion.

The correct answer is (C), as it maintains the proper subject-verb agreement and clarity.

Quick Tip

Ensure subject-verb agreement is correct when discussing singular or plural subjects in complex sentences.

44. Seldom more than 40 feet wide and 12 feet deep, but it ran 363 miles across the rugged wilderness of upstate New York, the Erie Canal connected the Hudson River at Albany to the Great Lakes at Buffalo, providing the port of New York City with a direct water link to the heartland of the North American continent. Which of the following is the correct version of the sentence?

- (A) Seldom more than 40 feet wide and 12 feet deep, but it ran 363 miles across the rugged wilderness of upstate New York, the Erie Canal connected
- (B) Seldom more than 40 feet wide or 12 feet deep but running 363 miles across the rugged wilderness of upstate New York, the Erie Canal connected
- (C) It was seldom more than 40 feet wide and 12 feet deep and ran 363 miles across the rugged wilderness of upstate New York, but the Erie Canal, connecting
- (D) The Erie Canal was seldom more than 40 feet wide or 12 feet deep and it ran 363 miles across the rugged wilderness of upstate New York, which connected
- (E) The Erie Canal, seldom more than 40 feet wide and 12 feet deep, but running 363 miles across the rugged wilderness of upstate New York, which connected

Correct Answer: (E) The Erie Canal, seldom more than 40 feet wide and 12 feet deep, but running 363 miles across the rugged wilderness of upstate New York, which connected

Solution:

Step 1: Identifying sentence structure.

The sentence needs to describe the Erie Canal's characteristics first and then provide the connecting clause. Option (E) uses commas effectively to separate the main clause from the modifying phrases.

Step 2: Analyzing the options.

- (A) The sentence structure is incomplete and lacks clarity.
- (B) This option is awkward because "running" doesn't fit seamlessly with the rest of the sentence.
- (C) This introduces unnecessary changes and is slightly awkward in phrasing.
- (D) The sentence is somewhat confusing in its structure and doesn't fit the flow of the narrative.
- (E) This is the correct answer. It is well-structured and clear, with proper use of commas and modifiers.

Step 3: Conclusion.

The correct answer is (E), as it provides a clear and grammatically sound structure.

Quick Tip

When modifying a noun with descriptive phrases, use commas to separate the modifying phrases for better clarity.

45. In 1923, the Supreme Court declared a minimum wage for women and children in the District of Columbia as unconstitutional, and ruling that it was a form of price-fixing and, as such, an abridgment of the right of contract. Which of the following is the correct version of the sentence?

- (A) the Supreme Court declared a minimum wage for women and children in the District of Columbia as unconstitutional, and
- (B) the Supreme Court declared an unconstitutional a minimum wage for women and children in the District of Columbia, and
- (C) the Supreme Court declared unconstitutional a minimum wage for women and children in the District of Columbia, and
- (D) a minimum wage for women and children in the District of Columbia was declared unconstitutional by the Supreme Court,
- (E) when the Supreme Court declared a minimum wage for women and children in the District of Columbia as unconstitutional,

Correct Answer: (C) the Supreme Court declared unconstitutional a minimum wage for women and children in the District of Columbia, and

Solution:

Step 1: Analyzing sentence structure.

The sentence requires the verb "declared unconstitutional" to fit properly with the rest of the sentence. "A minimum wage" should not come before "declared unconstitutional."

Step 2: Analyzing the options.

- (A) This option incorrectly places "as unconstitutional" in the wrong position.
- (B) The use of "an unconstitutional" is awkward and grammatically incorrect.
- (C) This is the correct answer. It correctly places the phrase "declared unconstitutional" in the sentence.
- (D) This is grammatically correct but changes the focus of the sentence unnecessarily.
- (E) The structure of "when the Supreme Court declared" makes the sentence more awkward and less clear.

Step 3: Conclusion.

The correct answer is (C), as it maintains the proper sentence structure and clarity.

Quick Tip

In complex sentences, pay attention to the placement of adjectives and adverbs to ensure clarity and correct grammar.

46. Researchers have found that individuals who have been blind from birth, and who thus have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people do, and that they will gesture even when conversing with another blind person. Which of the following is the correct version of the sentence?

- (A) who thus have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people do, and that they will gesture
- (B) who thus never have seen anyone gesture, nevertheless make hand motions when speaking just as frequent and in virtually the same way as sighted people did, and that they will gesture
- (C) who thus have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people did, and that they will gesture
- (D) who have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people do, and that they will gesture
- (E) who have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people do, and as well gesturing

Correct Answer: (D) who have never seen anyone gesture, nevertheless make hand motions when speaking just as frequently and in virtually the same way as sighted people do, and that they will gesture

Solution:

Step 1: Analyzing the sentence structure.

The phrase "who have never seen anyone gesture" needs to be followed by a clear and grammatically correct sentence.

Step 2: Analyzing the options.

- (A) The placement of "who thus" makes the sentence clunky.
- (B) "Just as frequent" is grammatically incorrect; it should be "just as frequently."
- (C) The use of "did" is incorrect, as the sentence describes ongoing actions.
- (D) This is the correct answer. It uses "who have never seen" and maintains proper grammatical structure.
- (E) "As well gesturing" is awkward and unnecessary.

Step 3: Conclusion.

The correct answer is (D), as it maintains proper grammar and sentence structure.

Quick Tip

Ensure consistency in verb tense and clarity when describing ongoing actions or states.

47. Like embryonic germ cells, which are cells that develop early in the formation of the fetus and that later generate eggs or sperm, embryonic stem cells have the ability of developing themselves into different kinds of body tissue. Which of the following is the correct version of the sentence?

- (A) embryonic stem cells have the ability of developing themselves into different kinds of body tissue
- (B) embryonic stem cells have the ability to develop into different kinds of body tissue
- (C) in embryonic stem cells there is the ability to develop into different kinds of body tissue
- (D) the ability to develop themselves into different kinds of body tissue characterizes embryonic stem cells
- (E) the ability of developing into different kinds of body tissue characterizes embryonic stem cells

Correct Answer: (B) embryonic stem cells have the ability to develop into different kinds of body tissue

Solution:

Step 1: Understanding the sentence structure.

The sentence describes embryonic stem cells and their ability to develop into different types of body tissue. The phrase "have the ability to develop" is the most natural construction.

Step 2: Analyzing the options.

- (A) "Ability of developing" is awkward and not the best phrasing.
- (B) This is the correct answer, as it uses "the ability to develop," which is a grammatically sound and natural expression.
- (C) This option creates unnecessary complexity.
- (D) This changes the meaning by making "the ability" the subject of the sentence.
- (E) "The ability of developing" is awkward and redundant.

Step 3: Conclusion.

The correct answer is (B), as it maintains clarity and correctness.

Quick Tip

In scientific writing, clarity is key. Use simple constructions that express ideas without unnecessary complexity.

48. Critics contend that the new missile is a weapon whose importance is largely symbolic, more a tool for manipulating people's perceptions than to fulfill a real military need.

Which of the following is the correct version of the sentence?

- (A) for manipulating people's perceptions than to fulfill
- (B) for manipulating people's perceptions than
- (C) to manipulate people's perceptions rather than that it fulfills
- (D) to manipulate people's perceptions rather than fulfilling
- (E) to manipulate people's perceptions than for fulfilling

Correct Answer: (D) to manipulate people's perceptions rather than fulfilling

Solution:

Step 1: Analyzing sentence structure.

The phrase "more a tool for manipulating people's perceptions than fulfilling" needs to be corrected to use the infinitive "to manipulate" and the gerund "fulfilling" correctly.

Step 2: Analyzing the options.

- (A) This construction is grammatically incorrect and awkward.
- (B) This leaves the sentence incomplete.
- (C) This option creates an unnecessary shift and weakens the sentence.
- (D) This is the correct answer, as it maintains clarity and parallel structure.
- (E) This option introduces unnecessary complexity.

Step 3: Conclusion.

The correct answer is (D), as it maintains clarity and proper sentence structure.

Quick Tip

Ensure parallel structure when comparing actions or ideas in a sentence.

49. As an actress and, more importantly, as a teacher of acting, Stella Adler was one of the most influential artists in the American theater, who trained several generations of actors including Marlon Brando and Robert De Niro. Which of the following is the correct version of the sentence?

- (A) Stella Adler was one of the most influential artists in the American theater, who trained several generations of actors including
- (B) Stella Adler, one of the most influential artists in the American theater, trained several generations of actors including
- (C) Stella Adler was one of the most influential artists in the American theater, training several generations of actors whose ranks included
- (D) one of the most influential artists in the American theater was Stella Adler, who trained several generations of actors including
- (E) one of the most influential artists in the American theater, Stella Adler, trained several generations of actors whose ranks included

Correct Answer: (B) Stella Adler, one of the most influential artists in the American theater, trained several generations of actors including

Solution:

Step 1: Analyzing sentence structure.

The sentence needs to introduce Stella Adler as the subject and then provide information about her. The most straightforward structure uses commas to separate the non-essential description of her.

Step 2: Analyzing the options.

- (A) This is grammatically incorrect because "who trained" creates confusion.
- (B) This is the correct answer, as it clearly states the main point without unnecessary complexity.
- (C) This option uses awkward phrasing and is incomplete.
- (D) This is grammatically awkward and changes the focus of the sentence.

- (E) This is grammatically correct but introduces unnecessary complexity.

Step 3: Conclusion.

The correct answer is (B), as it is the most clear and grammatically correct version of the sentence.

Quick Tip

When introducing a subject and adding additional information, use commas to separate non-essential clauses for clarity.

50. By developing the Secure Digital Music Initiative, the recording industry associations of North America, Japan, and Europe hope to create a standardized way of distributing songs and full-length recordings on the Internet that will protect copyright holders and foil the many audio pirates who copy and distribute digital music illegally.

Which of the following is the correct version of the sentence?

- (A) of distributing songs and full-length recordings on the Internet that will protect copyright holders and foil the many audio pirates who copy and distribute
- (B) distributing songs and full-length recordings on the Internet that will protect copyright holders and foil the many audio pirates copying and distributing
- (C) for distributing songs and full-length recordings on the Internet while it protects copyright holders and foil the many audio pirates who copy and distribute
- (D) for distributing songs and full-length recordings on the Internet that protect copyright holders and foil the many audio pirates who copy and distribute
- (E) distributing songs and full-length recordings on the Internet that protect copyright holders and foil the many audio pirates who copy and distribute

Correct Answer: (A) of distributing songs and full-length recordings on the Internet that will protect copyright holders and foil the many audio pirates who copy and distribute

Solution:

Step 1: Sentence structure.

The sentence needs to begin with a clear subject and then explain the intended outcome. The construction "of distributing" is the most logical and grammatically sound way to express the intended meaning.

Step 2: Analyzing the options.

- (A) This is the correct choice, as it follows proper grammatical structure and clarity.
- (B) "Copying and distributing" is awkward and redundant.
- (C) "While it protects" makes the sentence unclear and awkward.
- (D) The word "that" should be used rather than "which" to introduce the defining relative clause.
- (E) This is correct in structure but less clear than option (A).

Step 3: Conclusion.

The correct answer is (A), as it is grammatically correct and clear.

Quick Tip

When describing actions or goals, ensure the subject-verb and action are clearly aligned and grammatically correct.

51. Whereas a ramjet generally cannot achieve high speeds without the initial assistance of a rocket, high speeds can be attained by scramjets, or supersonic combustion ramjets, in that they reduce airflow compression at the entrance of the engine and letting air pass through at supersonic speeds.

Which of the following, if true, most seriously weakens the argument?

- (A) high speeds can be attained by scramjets, or supersonic combustion ramjets, in that they reduce
- (B) that high speeds can be attained by scramjets, or supersonic combustion ramjets, is a result of their reducing
- (C) the ability of scramjets, or supersonic combustion ramjets, to achieve high speeds is because they reduce
- (D) scramjets, or supersonic combustion ramjets, have the ability of attaining high speeds when reducing
- (E) scramjets, or supersonic combustion ramjets, can attain high speeds by reducing

Correct Answer: (E) scramjets, or supersonic combustion ramjets, can attain high speeds by reducing

Solution:

Step 1: Analyzing sentence structure.

The sentence needs a logical and clear expression of how high speeds are attained by scramjets. The construction "can attain high speeds by reducing" is the clearest and most accurate.

Step 2: Analyzing the options.

- (A) This option doesn't clearly express the mechanism of attaining high speeds.
- (B) This weakens the argument because "is a result of their reducing" is overly complex.
- (C) This option is grammatically incorrect.
- (D) This option is awkward and introduces unnecessary complexity.
- (E) This is the correct answer because it clearly and concisely describes how scramjets attain high speeds.

Step 3: Conclusion.

The correct answer is (E), as it is clear and grammatically correct.

Quick Tip

Ensure that the subject-verb relationship is direct and unambiguous when explaining mechanisms or processes.

52. It will not be possible to implicate melting sea ice in the coastal flooding that many global warming models have projected: just like a glass of water that will not overflow due to melting ice cubes, so melting sea ice does not increase oceanic volume.

Which of the following, if true, most seriously weakens the argument?

- (A) like a glass of water that will not overflow due to melting ice cubes,
- (B) like melting ice cubes that do not cause a glass of water to overflow,
- (C) a glass of water will not overflow because of melting ice cubes,
- (D) as melting ice cubes do not cause a glass of water to overflow,
- (E) as melting ice cubes do cause a glass of water to overflow,

Correct Answer: (E) as melting ice cubes do cause a glass of water to overflow,

Solution:

Step 1: Analyzing the analogy.

The argument relies on an analogy between melting ice cubes and melting sea ice. To weaken the argument, we need to show that the analogy is incorrect.

Step 2: Analyzing the options.

- (A) This does not provide evidence to weaken the analogy.
- (B) This is a slightly more convoluted version of the analogy, but it doesn't weaken it.
- (C) This option clarifies the analogy but does not weaken the argument.
- (D) This also does not weaken the analogy.
- (E) This is the correct answer, as it directly challenges the analogy by showing that melting ice cubes *do* cause water to overflow, just like melting sea ice increases oceanic volume.

Step 3: Conclusion.

The correct answer is (E), as it directly weakens the analogy.

Quick Tip

When using analogies, ensure the comparison is accurate and logically sound.