

PRACTICE EXAM 6: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) In the number 6,732,548, which digit is in the hundred-thousands place?
A) 5
B) 7
C) 3
D) 6
2. (Algebra) A pattern follows the rule "subtract 4 from the previous term." If the first term is 50, what is the 6th term?
A) 30
B) 34
C) 26
D) 22
3. (Spatial Sense) How many edges does a square-based pyramid have?
A) 4
B) 5
C) 8
D) 12

4. (Number Sense) Calculate: $24.6 - 17.85$

- A) 6.25
- B) 7.85
- C) 7.25
- D) 6.75

5. (Data Literacy) Five quiz scores were recorded: 78, 82, 90, 85, 75. What is the mean score?

- A) 80
- B) 82
- C) 84
- D) 85

6. (Number Sense) Express $\frac{9}{20}$ as a percent.

- A) 9%
- B) 18%
- C) 45%
- D) 90%

7. (Financial Literacy) Liam earns \$13.75 per hour. How much does he earn for working 4 hours?

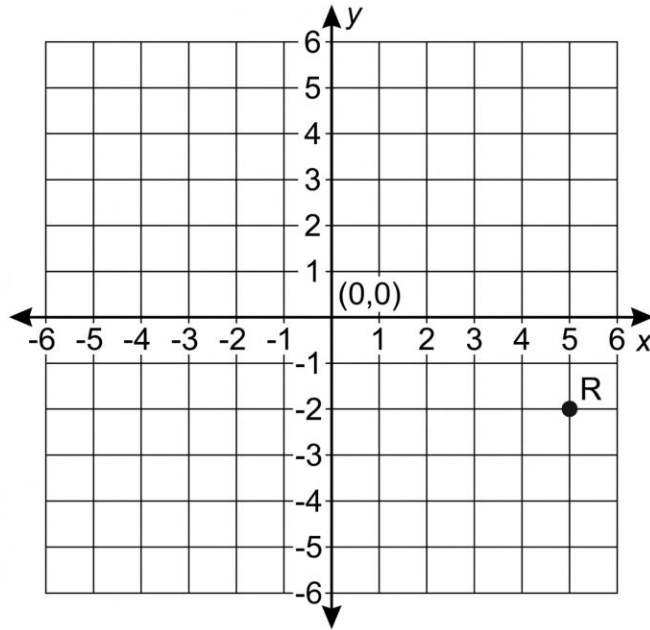
- A) \$55.00
- B) \$52.00
- C) \$57.50
- D) \$60.00

8. (Algebra) Solve for p : $p + 19 = 45$

- A) 64
- B) 24
- C) 28

D) 26

9. (Spatial Sense) The diagram shows point R plotted on a coordinate plane.



In which quadrant is point R located?

- A) Quadrant I
- B) Quadrant IV
- C) Quadrant II
- D) Quadrant III

10. (Number Sense) Calculate: 47×9

- A) 413
- B) 433
- C) 423
- D) 443

11. (Algebra) Which expression represents "three less than half of a number n"?

- A) $n/2 - 3$

- B) $3 - n/2$
- C) $(n - 3)/2$
- D) $2n - 3$

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: $192 \div 6$

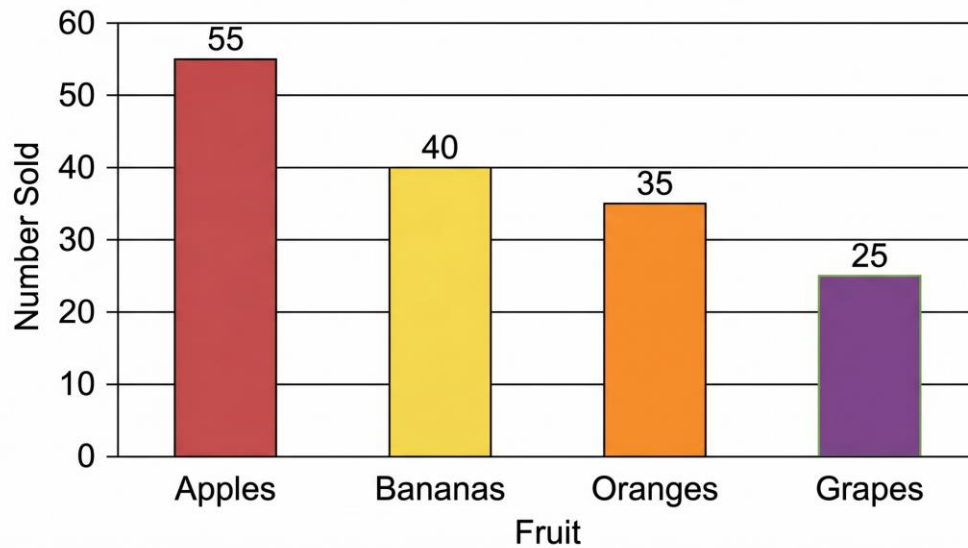
- A) 28
- B) 36
- C) 38
- D) 32

13. (Spatial Sense) An angle that measures exactly 180° is called what type of angle?

- A) Acute angle
- B) Obtuse angle
- C) Straight angle
- D) Right angle

14. (Data Literacy) The bar graph shows the number of fruits sold at a market last week.

Figure PQ-2



Which fruit had the highest sales?

- A) Apples
- B) Bananas
- C) Oranges
- D) Grapes

15. (Number Sense) Which fraction is equivalent to $12/16$?

- A) $2/3$
- B) $3/4$
- C) $4/5$
- D) $5/8$

16. (Algebra) What is the value of $4n + 7$ when $n = 5$?

- A) 20
- B) 23
- C) 25
- D) 27

17. (Financial Literacy) A bicycle costs \$240. It is on sale for 25% off. What is the sale price?

- A) \$180
- B) \$60
- C) \$200
- D) \$215

18. (Number Sense) What is 0.3 written as a percent?

- A) 0.3%
- B) 3%
- C) 30%
- D) 300%

19. (Spatial Sense) A triangle has a base of 10 cm and a height of 6 cm. What is its area?

- A) 60 cm^2
- B) 30 cm^2
- C) 16 cm^2
- D) 15 cm^2

20. (Data Literacy) A jar contains 15 marbles: 6 blue, 5 red, and 4 green. What is the probability of randomly drawing a red marble?

- A) $5/15$
- B) $6/15$
- C) $4/15$
- D) $1/4$

21. (Algebra) What is the next number in this sequence: 7, 14, 28, 56, ___?

- A) 84
- B) 96

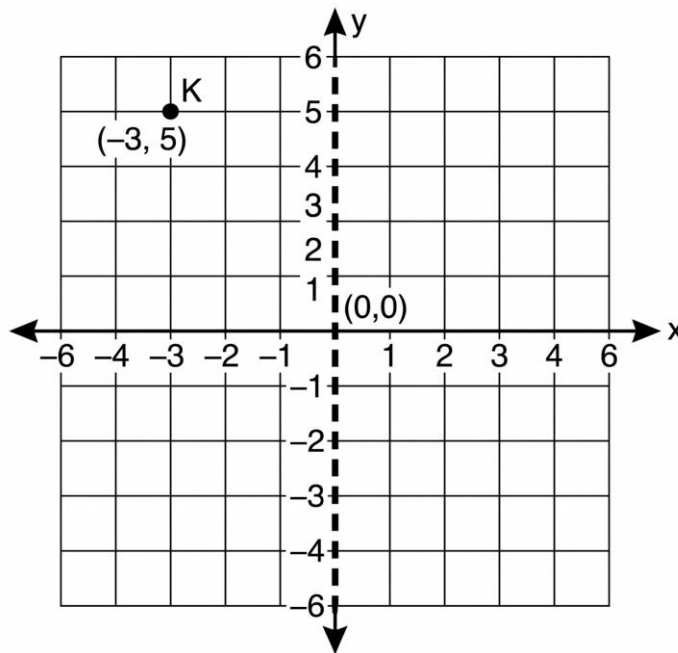
- C) 100
- D) 112

22. (Number Sense) Convert 3.5 liters to milliliters.

- A) 35 mL
- B) 350 mL
- C) 3,500 mL
- D) 35,000 mL

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) The diagram shows point K on a coordinate plane.



If K is reflected across the y-axis, what are the new coordinates?

- A) (3, 5)
- B) (-3, -5)
- C) (3, -5)
- D) (5, 3)

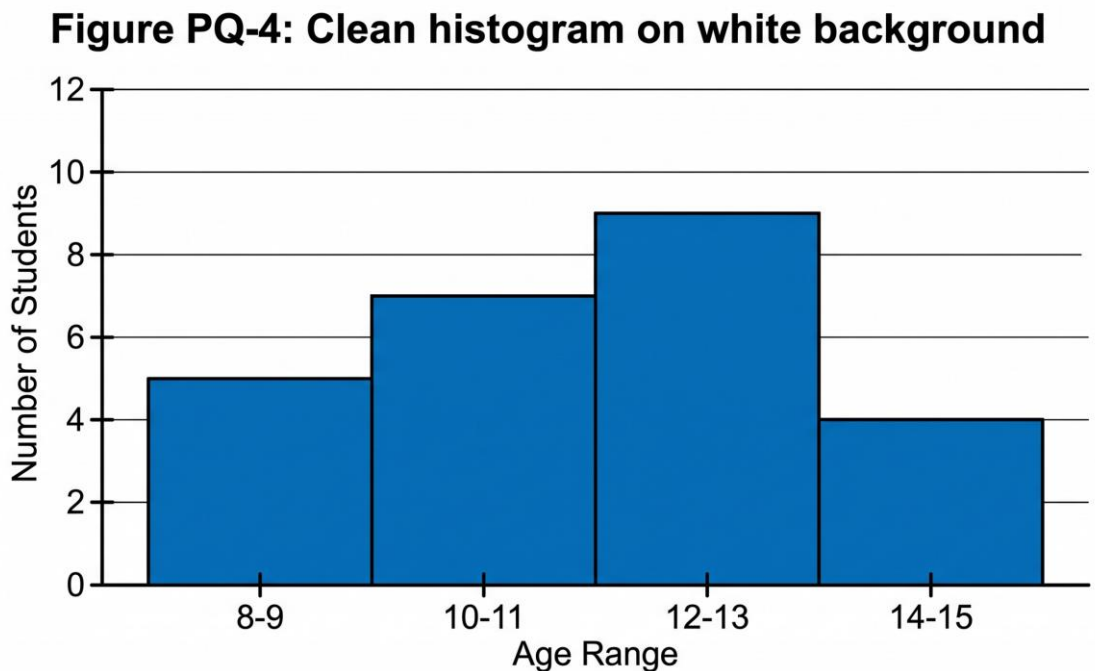
24. (Number Sense) Calculate: $\frac{5}{6} + \frac{1}{3}$

- A) $\frac{6}{9}$
- B) $\frac{7}{6}$
- C) $\frac{6}{6}$
- D) $\frac{5}{9}$

25. (Algebra) Solve for x: $4x - 9 = 27$

- A) 4.5
- B) 6
- C) 8
- D) 9

26. (Data Literacy) The histogram shows the ages of students at a community club.



How many students are in the 12-13 age range?

- A) 5
- B) 7

- C) 9
- D) 11

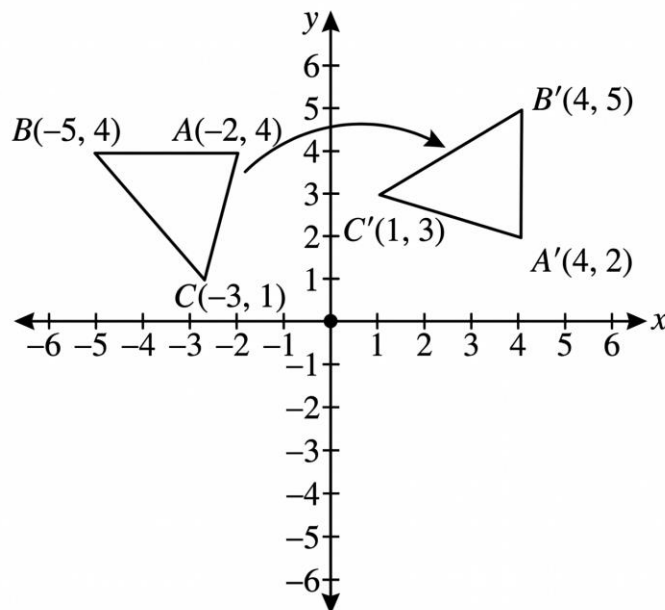
27. (Number Sense) Which number is the smallest?

- A) 0.6
- B) 0.06
- C) $\frac{6}{10}$
- D) 0.66

28. (Financial Literacy) Sara deposits \$500 in a savings account at 3% simple interest per year. How much interest will she earn after 4 years?

- A) \$20
- B) \$40
- C) \$50
- D) \$60

29. (Spatial Sense) The figure shows triangle ABC rotated 90° clockwise about the origin.



[Figure PQ-5]

What are the new coordinates of point A after the rotation?

- A) (4, 2)
- B) (2, -4)
- C) (-4, -2)
- D) (2, 4)

30. (Algebra) A taxi service charges \$4 to start and \$0.50 per kilometer driven. Which expression represents the total cost for d kilometers?

- A) $4d + 0.5$
- B) $4 + 0.5d$
- C) $4.5d$
- D) $0.5(4 + d)$

31. (Data Literacy) Find the mode of this data set: 3, 7, 5, 7, 9, 3, 7, 4.

- A) 3
- B) 5
- C) 7
- D) 9

32. (Data Literacy) A dataset contains: 12, 18, 25, 19, 22, 14. What is the range?

- A) 13
- B) 22
- C) 25
- D) 19

33. (Spatial Sense) A cube has edges measuring 4 cm each. What is its volume?

- A) 16 cm^3
- B) 12 cm^3
- C) 48 cm^3

D) 64 cm^3

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which list shows these integers in order from least to greatest? -6, 4, -1, 3, -8

A) -1, -6, -8, 3, 4

B) -8, -6, -1, 3, 4

C) 4, 3, -1, -6, -8

D) -6, -8, -1, 3, 4

35. (Algebra) Which rule describes the pattern: 8, 15, 22, 29, 36, ...?

A) Multiply by 7 each time

B) Subtract 7 each time

C) Add 7 each time

D) Add 8 each time

36. (Data Literacy) A spinner has 12 equal sections: 4 red, 3 blue, 3 yellow, and 2 green. What is the probability of NOT spinning red?

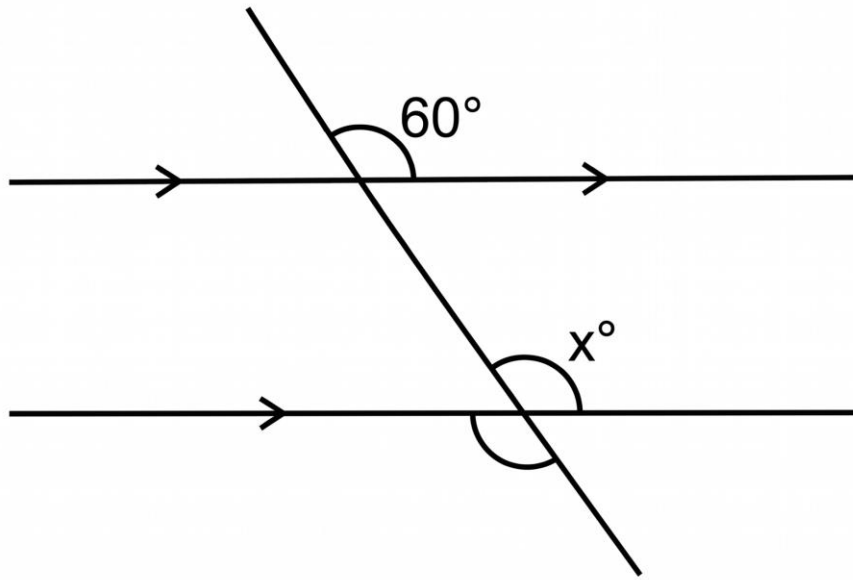
A) $\frac{4}{12}$

B) $\frac{3}{4}$

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

D) $\frac{2}{3}$

37. (Spatial Sense) The figure shows two parallel lines cut by a transversal.



[Figure PQ-6]

What is the measure of angle x ?

- A) 60°
- B) 120°
- C) 90°
- D) 30°

38. (Number Sense) Calculate: $5 + 3 \times (8 - 4)$

- A) 32
- B) 17
- C) 14
- D) 23

39. (Financial Literacy) Aiden earns \$25 each week from babysitting. He wants to save \$150. How many weeks will it take?

- A) 4 weeks
- B) 5 weeks
- C) 6 weeks

D) 7 weeks

40. (Algebra) In the expression $6t + 8$, where t represents tickets sold, what does the constant 8 most likely represent?

A) A fixed fee or starting amount

B) Number of tickets sold

C) Cost per ticket

D) Total revenue from tickets

41. (Number Sense) What is 35% of 80?

A) 24

B) 30

C) 25

D) 28

42. (Data Literacy) Find the median: 22, 15, 30, 18, 25, 20, 12

A) 18

B) 20

C) 22

D) 25

43. (Spatial Sense) A regular hexagon has each side measuring 7 cm. What is its perimeter?

A) 28 cm

B) 35 cm

C) 42 cm

D) 49 cm

44. (Number Sense) A recipe needs $\frac{2}{3}$ cup of sugar. If you make $\frac{3}{4}$ of the recipe, how much sugar do you need?

- A) $\frac{5}{12}$ cup
- B) $\frac{4}{7}$ cup
- C) $\frac{1}{3}$ cup
- D) $\frac{1}{2}$ cup

Practice Exam 6: Answer Key and Explanations

- 1. B** — The digit 7 is in the hundred-thousands place in 6,732,548. Reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 7 sits in the sixth position with a value of 700,000. Place value determines a digit's worth based on its position within the number.
- 2. A** — Starting at 50 and subtracting 4 repeatedly: term 1 = 50, term 2 = 46, term 3 = 42, term 4 = 38, term 5 = 34, term 6 = 30. This arithmetic sequence has a constant difference of -4. Tracking each term carefully ensures accurate identification of any specific position in a pattern.
- 3. C** — A square pyramid has 8 edges: 4 edges form the square base, and 4 additional edges connect each base vertex to the apex (top point). Counting edges systematically by separating base edges from slant edges prevents miscounting. Understanding 3D shape properties is essential for surface area and volume calculations.
- 4. D** — Align decimal points and subtract: $24.60 - 17.85 = 6.75$. Adding a trailing zero ($24.6 \rightarrow 24.60$) ensures equal decimal places before subtracting. Borrowing is required across multiple place values, demonstrating the importance of careful alignment in decimal operations.
- 5. B** — Calculate the mean by summing all values and dividing by the count: $(78 + 82 + 90 + 85 + 75) \div 5 = 410 \div 5 = 82$. The mean represents the central balancing point of the dataset where all values contribute equally. Mean is the most commonly used measure of central tendency in statistical analysis.
- 6. C** — Convert $\frac{9}{20}$ to a percent by finding an equivalent fraction with denominator 100: $\frac{9}{20} = \frac{45}{100} = 45\%$. Multiply both numerator and denominator by 5 to reach hundredths. Percent literally means "per hundred," so converting fractions to hundredths makes percent representation straightforward.
- 7. A** — Multiply hourly rate by hours worked: $\$13.75 \times 4 = \55.00 . Breaking down: $\$13 \times 4 = \52 , plus $\$0.75 \times 4 = \3.00 , totaling $\$55.00$. Accurate decimal multiplication is essential for calculating wages, taxes, and other financial computations.
- 8. D** — Solve by subtracting 19 from both sides: $p + 19 = 45 \rightarrow p = 45 - 19 = 26$. Subtraction is the inverse operation of addition, used to isolate the variable. Check: $26 + 19 = 45 \checkmark$. One-step equations form the foundation for solving more complex algebraic problems.

9. B — Point R has coordinates (5, -2): positive x-coordinate places it to the right of the y-axis, while the negative y-coordinate places it below the x-axis. This combination corresponds to Quadrant IV (lower-right region). Identifying quadrants from coordinate signs supports geometric analysis and graphing.

10. C — Multiply 47×9 : using the distributive property, $47 \times 9 = (40 \times 9) + (7 \times 9) = 360 + 63 = 423$. Breaking large multiplications into manageable parts using place value reduces calculation errors. Verification: $423 \div 9 = 47 \checkmark$.

11. A — "Half of a number n " translates to $n/2$ (or $n \div 2$). "Three less than" means subtract 3, producing $n/2 - 3$. The phrase "less than" reverses the order of subtraction—what comes before "less than" is what's being subtracted from the previous expression.

12. D — Divide 192 by 6: $192 \div 6 = 32$. Breaking this down: $180 \div 6 = 30$, plus $12 \div 6 = 2$, giving $30 + 2 = 32$. Verification: $6 \times 32 = 192 \checkmark$. Division efficiency improves with familiarity with multiplication facts and partial quotient strategies.

13. C — A straight angle measures exactly 180° and forms a straight line, with its two rays extending in opposite directions from the vertex. Acute angles measure less than 90° , right angles measure exactly 90° , and obtuse angles measure between 90° and 180° . Recognizing angle classifications supports geometric reasoning.

14. A — Reading the bar graph, the apples bar reaches 55 units, taller than bananas (40), oranges (35), and grapes (25). Comparing bar heights enables quick identification of maximum values in categorical data. Bar graphs efficiently display comparisons across discrete categories.

15. B — Simplify $12/16$ by dividing both numerator and denominator by their greatest common factor (4): $12/16 = (12 \div 4)/(16 \div 4) = 3/4$. Equivalent fractions represent the same proportion despite different appearance. Reducing to lowest terms supports fraction comparison and operations.

16. D — Substitute $n = 5$ into the expression $4n + 7$: $4(5) + 7 = 20 + 7 = 27$. Evaluating algebraic expressions requires replacing the variable with its given value, then following order of operations (multiplication before addition per BEDMAS).

17. A — Calculate the discount: 25% of $\$240 = 0.25 \times 240 = \60 . Subtract from the original price: $\$240 - \$60 = \$180$. Recognizing that 25% equals $1/4$ enables quick mental calculation: $\$240 \div 4 = \60 discount. Sale price calculations support informed consumer decisions.

18. C — Convert decimal to percent by multiplying by 100: $0.3 \times 100 = 30\%$. Alternatively, $0.3 = 3/10 = 30/100 = 30\%$. Moving the decimal point two places to the right converts decimals to percents directly. This conversion enables flexible representation across mathematical contexts.

19. B — Area of a triangle = $(1/2) \times \text{base} \times \text{height} = (1/2) \times 10 \times 6 = 30 \text{ cm}^2$. The base and height must be perpendicular to each other. Triangle area equals half the area of a rectangle with the same base and height dimensions, since a triangle is half of such a rectangle.

- 20. A** — Probability equals favorable outcomes divided by total outcomes: $P(\text{red}) = 5 \text{ red marbles} / 15 \text{ total marbles} = 5/15$. This can simplify to $1/3$, but $5/15$ directly matches the listed answer choice. Probability values range from 0 (impossible) to 1 (certain), expressing likelihood as a fraction.
- 21. D** — The pattern multiplies by 2 each time: $7 \times 2 = 14$, $14 \times 2 = 28$, $28 \times 2 = 56$, $56 \times 2 = 112$. This geometric sequence has a common ratio of 2 between consecutive terms. Identifying the multiplicative relationship distinguishes geometric patterns from arithmetic ones.
- 22. C** — Convert liters to milliliters by multiplying by 1,000: $3.5 \text{ L} \times 1,000 = 3,500 \text{ mL}$. The metric system's base-10 structure makes conversions straightforward—1 liter equals 1,000 milliliters. Moving from larger to smaller units requires multiplication, producing a larger numerical value.
- 23. A** — Reflection across the y-axis changes the sign of the x-coordinate while y remains unchanged: $(x, y) \rightarrow (-x, y)$. Point K at $(-3, 5)$ reflects to $K'(3, 5)$. The y-axis acts as a vertical mirror line, flipping points to the opposite side while maintaining the same vertical position.
- 24. B** — Find a common denominator (6): $5/6 + 1/3 = 5/6 + 2/6 = 7/6$. Convert $1/3$ to sixths by multiplying numerator and denominator by 2. Adding fractions requires like denominators so that numerators represent parts of the same-sized whole.
- 25. D** — Solve the two-step equation: $4x - 9 = 27 \rightarrow$ add 9 to both sides: $4x = 36 \rightarrow$ divide both sides by 4: $x = 9$. Check: $4(9) - 9 = 36 - 9 = 27 \checkmark$. Two-step equations require systematic application of inverse operations in reverse order of operations.
- 26. C** — Reading the histogram, the bar for the 12-13 age range reaches a height of 9 students. Histograms display frequency distributions for grouped data, with bar height representing the count within each interval. Identifying values requires careful reading of both axes and bar heights.
- 27. B** — Compare the values: $0.6 = 0.60$, $0.06 = 0.06$, $6/10 = 0.60$, $0.66 = 0.66$. The smallest is 0.06, which has fewer tenths than the others (zero tenths versus six tenths). Comparing decimals requires examining place values from left to right, starting with tenths.
- 28. D** — Use the simple interest formula: $I = P \times r \times t = \$500 \times 0.03 \times 4 = \60 . Principal (\$500) times rate (3% = 0.03) times time (4 years) gives total interest earned. Simple interest calculates only on the original principal, making it straightforward for introductory financial calculations.
- 29. A** — A 90° clockwise rotation about the origin transforms point $(x, y) \rightarrow (y, -x)$. Point A at $(-2, 4)$ becomes $A'(4, -(-2)) = (4, 2)$. Rotations preserve shape and size while changing orientation, with predictable coordinate transformations for standard angles around the origin.
- 30. B** — The fixed starting fee of \$4 is the constant, and \$0.50 per kilometer multiplied by d kilometers gives $0.5d$ for the variable cost. Total cost: $4 + 0.5d$. Linear expressions like this model real-world pricing where fixed and variable costs combine—a foundational concept in financial mathematics.

31. C — The mode is the value occurring most frequently. Counting occurrences: 3 appears 2 times, 7 appears 3 times, 5 appears 1 time, 9 appears 1 time, 4 appears 1 time. The mode is 7. Mode identifies the most common value, useful for analyzing repeated measurements or survey responses.

32. A — Range equals maximum minus minimum: maximum = 25, minimum = 12, so range = $25 - 12 = 13$. Range measures variability or spread in data, indicating how far apart the extreme values are. This simple measure provides a quick sense of data dispersion.

33. D — Volume of a cube equals edge length cubed: $V = s^3 = 4^3 = 4 \times 4 \times 4 = 64 \text{ cm}^3$. Volume measures the three-dimensional space enclosed by the cube, expressed in cubic units. The formula reflects that a cube's three equal dimensions multiply together to fill its interior.

34. B — Order from least to greatest requires placing negative numbers first (most negative to least negative), then non-negatives in ascending order: -8, -6, -1, 3, 4. With negatives, the larger the absolute value, the smaller the number. Integer ordering applies to temperature, elevation, and financial contexts.

35. C — The differences between consecutive terms are constant: $15 - 8 = 7$, $22 - 15 = 7$, $29 - 22 = 7$, $36 - 29 = 7$. The pattern adds 7 each time, identifying this as an arithmetic sequence with common difference of 7. Recognizing the constant difference defines the pattern rule.

36. D — The probability of not spinning red equals 1 minus the probability of spinning red. $P(\text{not red}) = (12 - 4)/12 = 8/12 = 2/3$. Alternatively, count favorable outcomes: $3 + 3 + 2 = 8$ non-red sections out of 12 total. Complementary probabilities always sum to 1.

37. A — When parallel lines are cut by a transversal, corresponding angles are equal. The angle marked 60° and angle x occupy corresponding positions (both upper-right at their respective intersection points), making $x = 60^\circ$. This property enables calculation of unknown angles in parallel line configurations.

38. B — Apply order of operations: brackets first: $(8 - 4) = 4$; then multiplication: $3 \times 4 = 12$; finally addition: $5 + 12 = 17$. BEDMAS dictates this sequence—parentheses before multiplication before addition. Skipping or reordering produces incorrect results.

39. C — Divide the savings goal by the weekly savings amount: $\$150 \div \$25 = 6$ weeks. This calculation determines how long regular savings will take to reach a target amount. Setting and working toward financial goals requires breaking large targets into manageable weekly or monthly amounts.

40. A — In linear expressions like $6t + 8$, the constant term (8) represents a fixed amount that doesn't depend on the variable—typically a flat fee, starting amount, or one-time charge. The coefficient (6) multiplies the variable, representing a per-unit rate. Recognizing expression components helps interpret real-world models.

41. D — Calculate 35% of 80: convert percent to decimal ($35\% = 0.35$) and multiply: $0.35 \times 80 = 28$. Alternatively, find 10% (8), so $35\% = 3.5 \times 8 = 28$. Percent calculations underpin financial computations, statistical analysis, and proportional reasoning across many contexts.

42. B — Order the values: 12, 15, 18, 20, 22, 25, 30. With 7 values (odd count), the median is the middle value at position 4, which is 20. Three values fall below and three above this middle point. Median represents the center of ordered data, unaffected by extreme values or outliers.

43. C — A regular hexagon has 6 equal sides. Perimeter equals the sum of all sides: $6 \times 7 = 42$ cm. Regular polygons (all sides and angles equal) have perimeters calculated by multiplying side length by the number of sides. This shortcut works for any regular polygon.

44. D — Calculate $\frac{3}{4}$ of $\frac{2}{3}$ by multiplying the fractions: $(\frac{2}{3}) \times (\frac{3}{4}) = \frac{(2 \times 3)}{(3 \times 4)} = \frac{6}{12} = \frac{1}{2}$ cup. When multiplying fractions, multiply numerators together and denominators together, then simplify. Scaling recipes requires proportional adjustment to maintain correct proportions.