

PRACTICE EXAM 8: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

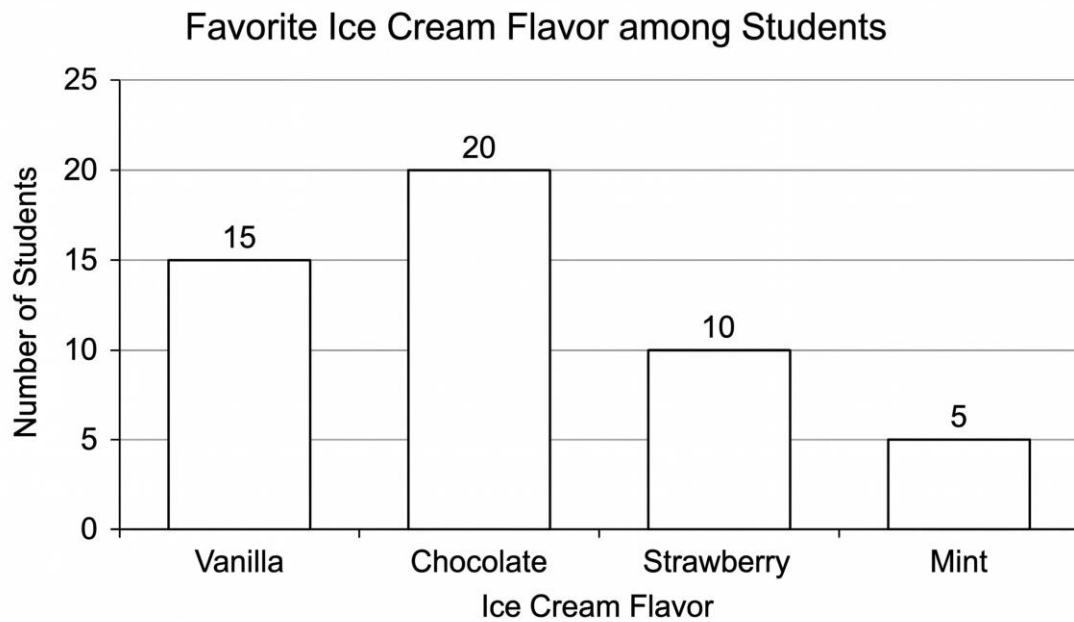
STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) Round 263,847 to the nearest ten thousand.
A) 270,000
B) 263,000
C) 263,800
D) 260,000
2. (Algebra) A pattern starts at 80 and follows the rule "subtract 7 each time." What is the 5th term?
A) 45
B) 52
C) 59
D) 66
3. (Spatial Sense) A three-dimensional shape has 1 square base and 4 triangular faces meeting at a single point. What is the name of this shape?
A) Square pyramid
B) Triangular prism
C) Cube
D) Rectangular prism

4. (Number Sense) Calculate: $32.6 + 15.85$

- A) 47.85
- B) 47.45
- C) 48.45
- D) 48.85

5. (Data Literacy) The bar graph shows favorite ice cream flavors of students surveyed.



Which flavor was chosen by the fewest students?

- A) Vanilla
- B) Chocolate
- C) Strawberry
- D) Mint

6. (Number Sense) Which fraction is less than $\frac{1}{2}$?

- A) $\frac{5}{8}$
- B) $\frac{3}{8}$
- C) $\frac{7}{10}$

D) $\frac{4}{7}$

7. (Financial Literacy) Lily buys a book for \$14.75 and a pen for \$3.25. What is the total cost?

A) \$17.00

B) \$17.50

C) \$18.00

D) \$18.50

8. (Algebra) Solve for n : $n \times 6 = 54$

A) 9

B) 8

C) 10

D) 11

9. (Spatial Sense) Which angle is the largest?

A) 35°

B) 90°

C) 120°

D) 175°

10. (Number Sense) What is 12% of 50?

A) 4

B) 5

C) 6

D) 7

11. (Algebra) Which expression represents "half of a number n , plus 3"?

A) $\frac{n}{2} + 3$

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

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 8×67

- A) 526
- B) 536
- C) 546
- D) 556

13. (Spatial Sense) A square has a side length of 7 cm. What is its area?

- A) 14 cm^2
- B) 28 cm^2
- C) 49 cm^2
- D) 56 cm^2

14. (Data Literacy) Five test scores were recorded: 75, 80, 85, 90, 80. What is the median?

- A) 75
- B) 82
- C) 85
- D) 80

15. (Number Sense) Calculate: $924 \div 4$

- A) 231
- B) 224
- C) 234

D) 251

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

A) 28

B) 31

C) 33

D) 35

17. (Financial Literacy) A coat costs \$80. The store offers a 25% discount. What is the sale price?

A) \$50

B) \$55

C) \$60

D) \$65

18. (Number Sense) Convert 2.8 meters to centimeters.

A) 28 cm

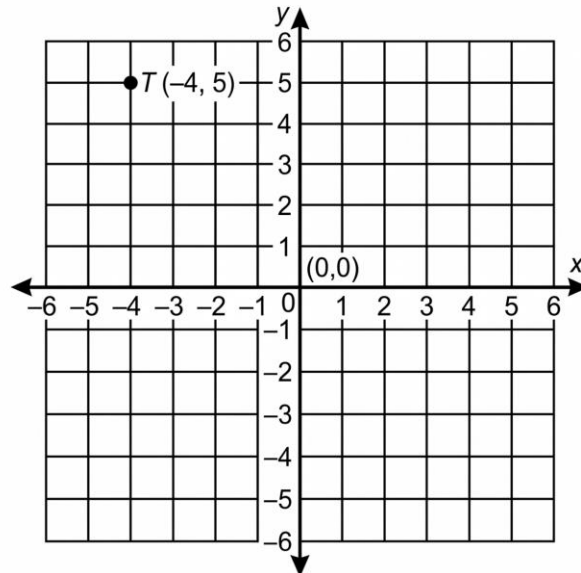
B) 0.028 cm

C) 2,800 cm

D) 280 cm

19. (Spatial Sense) The diagram shows point T plotted on a coordinate plane.

Figure PQ-2



In which quadrant is point T located?

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

20. (Data Literacy) A bag contains 24 candies: 8 red, 6 blue, 7 green, and 3 yellow. What is the probability of picking a green candy?

- A) $\frac{6}{24}$
- B) $\frac{8}{24}$
- C) $\frac{7}{24}$
- D) $\frac{3}{24}$

21. (Algebra) What is the next term in this sequence: 2, 6, 18, 54, ___?

- A) 108
- B) 162
- C) 216

D) 270

22. (Number Sense) Which fraction is equivalent to $\frac{8}{12}$?

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

B) $\frac{4}{5}$

C) $\frac{5}{8}$

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

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) Point W is at (3, -2) on a coordinate grid. If W is reflected across the y-axis, what are the new coordinates?

A) (-3, -2)

B) (3, 2)

C) (-3, 2)

D) (-2, 3)

24. (Number Sense) Calculate: $\frac{5}{6} + \frac{1}{4}$

A) $\frac{6}{10}$

B) $\frac{6}{24}$

C) $\frac{13}{12}$

D) $\frac{4}{10}$

25. (Algebra) Solve for x: $4x + 7 = 31$

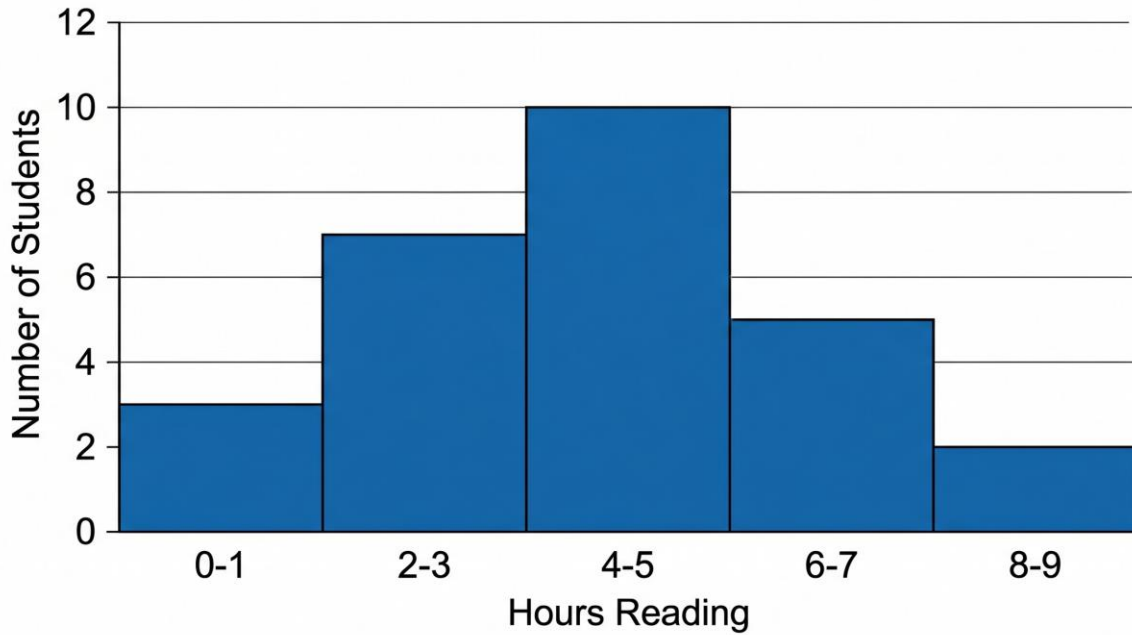
A) 4

B) 6

C) 8

D) 9

26. (Data Literacy) The histogram shows the number of hours students spent reading last week.



How many students spent between 6-7 hours reading?

- A) 7
- B) 10
- C) 3
- D) 5

27. (Number Sense) What is 0.65 written as a percent?

- A) 65%
- B) 6.5%
- C) 0.65%
- D) 650%

28. (Financial Literacy) Maya deposits \$400 in a savings account at 4% simple interest per year. How much interest will she earn after 5 years?

- A) \$40
- B) \$60

- C) \$80
- D) \$100

29. (Spatial Sense) How many faces does a hexagonal pyramid have?

- A) 6
- B) 7
- C) 8
- D) 12

30. (Algebra) A car rental company charges \$25 per day plus \$0.20 per kilometer driven. Which expression represents the cost for d days and k kilometers?

- A) $25d + k$
- B) $25 + 0.20(d + k)$
- C) $25 + 0.20dk$
- D) $25d + 0.20k$

31. (Number Sense) Calculate: $(5 + 3) \times 4 - 7$

- A) 25
- B) 17
- C) 30
- D) 22

32. (Data Literacy) A dataset contains: 22, 31, 18, 45, 27, 33. What is the range?

- A) 18
- B) 22
- C) 27
- D) 45

33. (Spatial Sense) A regular pentagon has each side measuring 8 cm. What is its perimeter?

- A) 32 cm
- B) 40 cm
- C) 48 cm
- D) 56 cm

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which list shows these integers in order from least to greatest? -7, -2, 0, 5, 9

- A) -7, -2, 0, 5, 9
- B) -2, -7, 0, 5, 9
- C) 9, 5, 0, -2, -7
- D) 0, -2, -7, 5, 9

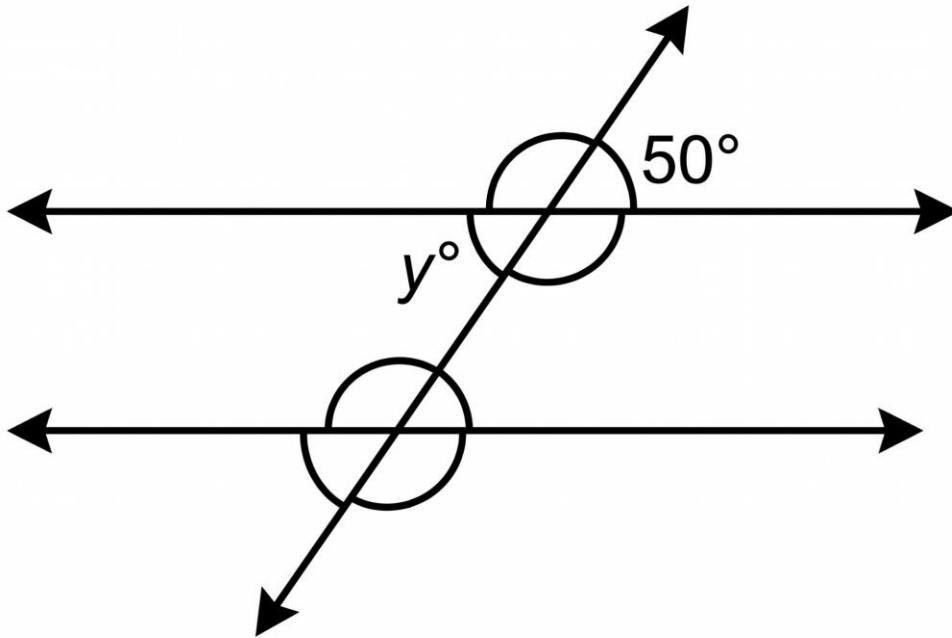
35. (Algebra) If $6n - 5 = 37$, what is the value of n ?

- A) 5
- B) 6
- C) 8
- D) 7

36. (Data Literacy) A bag contains 30 marbles: 12 red, 9 blue, 6 green, and 3 yellow. What is the probability of drawing a marble that is NOT red?

- A) $12/30$
- B) $9/30$
- C) $3/5$
- D) $2/5$

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



What is the value of angle y ?

- A) 50°
- B) 130°
- C) 90°
- D) 30°

38. (Number Sense) Evaluate: $8 + 3^2 \times 2 - 4$

- A) 22
- B) 28
- C) 30
- D) 14

39. (Financial Literacy) Ethan saves \$35 per week. How long will it take him to save \$420?

- A) 10 weeks
- B) 11 weeks
- C) 12 weeks
- D) 14 weeks

40. (Algebra) In the expression $8n + 12$, where n represents hours worked, what does the constant 12 most likely represent?

- A) Hourly wage rate
- B) Fixed bonus or starting amount
- C) Total earnings amount
- D) Number of hours worked

41. (Number Sense) What number makes this statement true? $7/12 = ?/48$

- A) 21
- B) 24
- C) 25
- D) 28

42. (Data Literacy) Five measurements were recorded: 14, 18, 22, 19, 17. What is the mean?

- A) 18
- B) 19
- C) 20
- D) 22

43. (Spatial Sense) A rectangular prism has dimensions $5 \text{ cm} \times 3 \text{ cm} \times 4 \text{ cm}$. What is its volume?

- A) 12 cm^3
- B) 35 cm^3
- C) 47 cm^3
- D) 60 cm^3

44. (Data Literacy) These values were recorded in a frequency table: 5, 8, 6, 8, 10, 8, 7. What is the mode?

- A) 6
- B) 8
- C) 7

Practice Exam 8: Answer Key and Explanations

1. D — Rounding to the nearest ten thousand requires examining the thousands digit. In 263,847, the thousands digit is 3, which is less than 5, so the ten-thousands digit stays the same (6), and all digits to the right become zero, giving 260,000. Rounding helps simplify numbers for estimation and reporting purposes.

2. B — Starting at 80 and subtracting 7 repeatedly: term 1 = 80, term 2 = 73, term 3 = 66, term 4 = 59, term 5 = 52. This arithmetic sequence has a constant difference of -7. Tracking each term carefully ensures accurate identification of any position in the pattern.

3. A — A square pyramid has exactly 1 square base and 4 triangular faces that meet at a single point called the apex. This 3D shape has 5 faces total, 8 edges, and 5 vertices. The classic Egyptian pyramids exemplify this geometric solid in real-world architecture.

4. C — Align decimal points and add: $32.60 + 15.85 = 48.45$. Adding a trailing zero ($32.6 \rightarrow 32.60$) ensures matching decimal places for accurate addition. Proper alignment of place values is essential for decimal operations in financial calculations and measurements.

5. D — Reading the bar graph, Mint has only 5 students, the shortest bar compared to Vanilla (15), Chocolate (20), and Strawberry (10). Comparing bar heights enables quick identification of minimum and maximum values in categorical data displays. Bar graphs efficiently show comparisons across discrete categories.

6. B — Compare each fraction to $\frac{1}{2}$ (which equals 0.5): $\frac{5}{8} = 0.625$, $\frac{3}{8} = 0.375$, $\frac{7}{10} = 0.7$, $\frac{4}{7} \approx 0.571$. Only $\frac{3}{8}$ is less than $\frac{1}{2}$. Comparing fractions to benchmark values like $\frac{1}{2}$ supports estimation and ordering of rational numbers.

7. C — Add the two prices together: $\$14.75 + \$3.25 = \$18.00$. The cents add to exactly 100 ($\$0.75 + \$0.25 = \$1.00$), making the total a whole dollar amount. Calculating totals supports daily financial transactions and budgeting skills.

8. A — Solve by dividing both sides by 6: $n \times 6 = 54 \rightarrow n = 54 \div 6 = 9$. Division is the inverse operation of multiplication, used to isolate the variable. Check: $9 \times 6 = 54 \checkmark$. One-step equations build foundational algebraic skills.

9. D — Comparing angle measures: 175° is the largest, exceeding 35° (acute), 90° (right), and 120° (obtuse). At 175° , this angle is just below a straight angle (180°) and is classified as obtuse. Angle magnitude is measured in degrees, with larger numerical values representing wider angles.

10. C — Calculate 12% of 50: convert percent to decimal ($12\% = 0.12$) and multiply: $0.12 \times 50 = 6$. Alternatively, 10% of 50 = 5, plus 2% of 50 = 1, totaling 6. Percent calculations underpin financial computations, statistics, and proportional reasoning.

- 11. A** — "Half of n " translates to $n/2$ (division), and "plus 3" means add 3, producing $n/2 + 3$. The expression follows the verbal description in order: first divide the variable by 2, then add the constant. Translation order matches the spoken sequence of operations.
- 12. B** — Multiply 8×67 : using the distributive property, $8 \times 67 = 8 \times (60 + 7) = 480 + 56 = 536$. Breaking large multiplications into manageable parts using place value reduces calculation errors. Verification: $536 \div 8 = 67 \checkmark$.
- 13. C** — Area of a square equals side length squared: $A = s^2 = 7^2 = 7 \times 7 = 49 \text{ cm}^2$. Squaring the side gives area in square units. This formula reflects that a square's two equal dimensions multiply together to determine the enclosed two-dimensional space.
- 14. D** — Order the scores: 75, 80, 80, 85, 90. With 5 values (odd count), the median is the middle value at position 3, which is 80. Median represents the center of ordered data and is unaffected by extreme values, making it useful when outliers are present.
- 15. A** — Divide 924 by 4: breaking this down, $800 \div 4 = 200$, $120 \div 4 = 30$, and $4 \div 4 = 1$, giving $200 + 30 + 1 = 231$. Verification: $4 \times 231 = 924 \checkmark$. Division efficiency improves with familiarity with multiplication facts and partial quotient strategies.
- 16. B** — Substitute $y = 7$ into the expression $5y - 4$: $5(7) - 4 = 35 - 4 = 31$. Order of operations requires performing multiplication before subtraction per BEDMAS. Evaluating algebraic expressions connects symbolic algebra to numerical results.
- 17. C** — Calculate the discount: 25% of $\$80 = 0.25 \times \$80 = \$20$. Subtract from the original price: $\$80 - \$20 = \$60$. Recognizing $25\% = 1/4$ enables quick mental calculation: $\$80 \div 4 = \20 discount. Sale price calculations support informed consumer decisions.
- 18. D** — Convert meters to centimeters by multiplying by 100: $2.8 \text{ m} \times 100 = 280 \text{ cm}$. The metric system uses base-10 conversions, with 1 m equaling 100 cm. Moving from larger to smaller units requires multiplication, producing a larger numerical value for the same physical length.
- 19. A** — Point T has coordinates $(-4, 5)$: the negative x-coordinate places it left of the y-axis, and the positive y-coordinate places it above the x-axis. This combination corresponds to Quadrant II (upper-left region). Identifying quadrants from coordinate signs supports coordinate geometry.
- 20. C** — Probability equals favorable outcomes divided by total outcomes: $P(\text{green}) = 7 \text{ green} / 24 \text{ total} = 7/24$. The fraction expresses the likelihood of drawing a green candy on a single random selection. Probability values range from 0 (impossible) to 1 (certain).
- 21. B** — The pattern multiplies by 3 each time: $2 \times 3 = 6$, $6 \times 3 = 18$, $18 \times 3 = 54$, $54 \times 3 = 162$. This geometric sequence has a common ratio of 3 between consecutive terms. Identifying the multiplicative relationship distinguishes geometric patterns from arithmetic ones.

- 22. D** — Simplify $\frac{8}{12}$ by dividing both numerator and denominator by their greatest common factor (4): $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$. Equivalent fractions represent the same value despite different appearance. Reducing fractions to simplest form supports easier comparison and operations.
- 23. A** — Reflection across the y-axis changes the sign of the x-coordinate while y remains unchanged: $(x, y) \rightarrow (-x, y)$. Point W at $(3, -2)$ reflects to $W'(-3, -2)$. The y-axis acts as a vertical mirror line, flipping points to the opposite side while maintaining vertical position.
- 24. C** — Find common denominator (12): $\frac{5}{6} = \frac{10}{12}$ and $\frac{1}{4} = \frac{3}{12}$. Add: $\frac{10}{12} + \frac{3}{12} = \frac{13}{12}$. This improper fraction equals $1 \frac{1}{12}$ as a mixed number. Like denominators are required so that numerators represent parts of the same-sized whole.
- 25. B** — Solve the two-step equation: $4x + 7 = 31 \rightarrow$ subtract 7 from both sides: $4x = 24 \rightarrow$ divide both sides by 4: $x = 6$. Check: $4(6) + 7 = 24 + 7 = 31 \checkmark$. Two-step equations require systematic application of inverse operations.
- 26. D** — Reading the histogram, the bar for the 6-7 hour interval reaches a height of 5 students. Histograms display frequency distributions for grouped data, with bar height representing the count within each interval. Identifying specific values requires careful reading of both axes.
- 27. A** — Convert decimal to percent by multiplying by 100: $0.65 \times 100 = 65\%$. Alternatively, $0.65 = \frac{65}{100} = 65\%$. Moving the decimal point two places to the right converts decimals to percents directly. This conversion enables flexible representation across mathematical contexts.
- 28. C** — Use the simple interest formula: $I = P \times r \times t = \$400 \times 0.04 \times 5 = \80 . Principal (\$400) times rate (4% = 0.04) times time (5 years) gives interest earned. Simple interest calculates earnings only on the original principal, supporting basic financial literacy.
- 29. B** — A hexagonal pyramid has 7 faces total: 1 hexagonal base plus 6 triangular faces that meet at the apex. The formula for pyramid faces equals 1 (base) + n (sides of base). Understanding face counts supports surface area calculations and net construction.
- 30. D** — The variable cost is \$25 per day times d days ($25d$) plus \$0.20 per kilometer times k kilometers ($0.20k$). Total cost combines both rates: $25d + 0.20k$. Each rate multiplies its corresponding variable, then the products are added to find the total.
- 31. A** — Apply order of operations: brackets first: $(5 + 3) = 8$; then multiplication: $8 \times 4 = 32$; finally subtraction: $32 - 7 = 25$. BEDMAS dictates this sequence—parentheses before multiplication before subtraction. Each operation must be performed in correct order.
- 32. C** — Range equals maximum minus minimum: maximum = 45, minimum = 18, so range = $45 - 18 = 27$. 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. B** — A regular pentagon has 5 equal sides. Perimeter equals $5 \times 8 = 40$ cm. Regular polygons (all sides and angles equal) have perimeters calculated by multiplying side length by the number of sides. This shortcut applies to any regular polygon.
- 34. A** — Order from least to greatest requires placing the most negative number first, then increasing values: -7 (most negative), -2, 0, 5, 9 (greatest). With negative numbers, the larger the absolute value, the smaller the number. This ordering applies to temperature, elevation, and financial contexts.
- 35. D** — Solve: $6n - 5 = 37 \rightarrow$ add 5 to both sides: $6n = 42 \rightarrow$ divide both sides by 6: $n = 7$. Check: $6(7) - 5 = 42 - 5 = 37 \checkmark$. Two-step equation solving applies inverse operations systematically to isolate the variable.
- 36. C** — The probability of not red equals total non-red marbles divided by total marbles: $(9 + 6 + 3)/30 = 18/30 = 3/5$ in simplest form. Complementary probabilities (red vs. not red) always sum to 1, providing a useful problem-solving approach.
- 37. B** — Angles on a straight line sum to 180° (supplementary angles). The 50° angle and angle y form a linear pair at the intersection, so $y = 180^\circ - 50^\circ = 130^\circ$. This angle relationship enables calculation of unknown angles when adjacent angles share a straight line.
- 38. A** — Follow order of operations: exponent first: $3^2 = 9$; then multiplication: $9 \times 2 = 18$; finally add and subtract left to right: $8 + 18 - 4 = 26 - 4 = 22$. BEDMAS ensures consistent evaluation. The correct sequence produces 22.
- 39. C** — Divide the savings goal by the weekly savings amount: $\$420 \div \$35 = 12$ 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 amounts.
- 40. B** — In the expression $8n + 12$, the constant term (12) represents a fixed amount that doesn't depend on the variable—typically a bonus, signing payment, or starting amount. The coefficient (8) multiplies n , representing a per-unit rate (hourly wage). Recognizing expression components helps interpret real-world models.
- 41. D** — The denominator changes from 12 to 48, which is multiplying by 4 ($12 \times 4 = 48$). Apply the same factor to the numerator: $7 \times 4 = 28$. Therefore, $7/12 = 28/48$. Equivalent fractions are created by multiplying both parts by the same value, preserving the ratio.
- 42. A** — Calculate mean by summing values and dividing by count: $(14 + 18 + 22 + 19 + 17) \div 5 = 90 \div 5 = 18$. 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.
- 43. D** — Volume of rectangular prism: $V = \text{length} \times \text{width} \times \text{height} = 5 \times 3 \times 4 = 60 \text{ cm}^3$. Volume measures the three-dimensional space occupied by an object, expressed in cubic units. The order of multiplication doesn't affect the result due to the commutative property.

44. B — The mode is the value appearing most frequently. Counting occurrences: 5 appears once, 8 appears three times, 6 appears once, 10 appears once, 7 appears once. The mode is 8. Mode identifies the most common value, useful when analyzing repeated measurements or survey responses.