

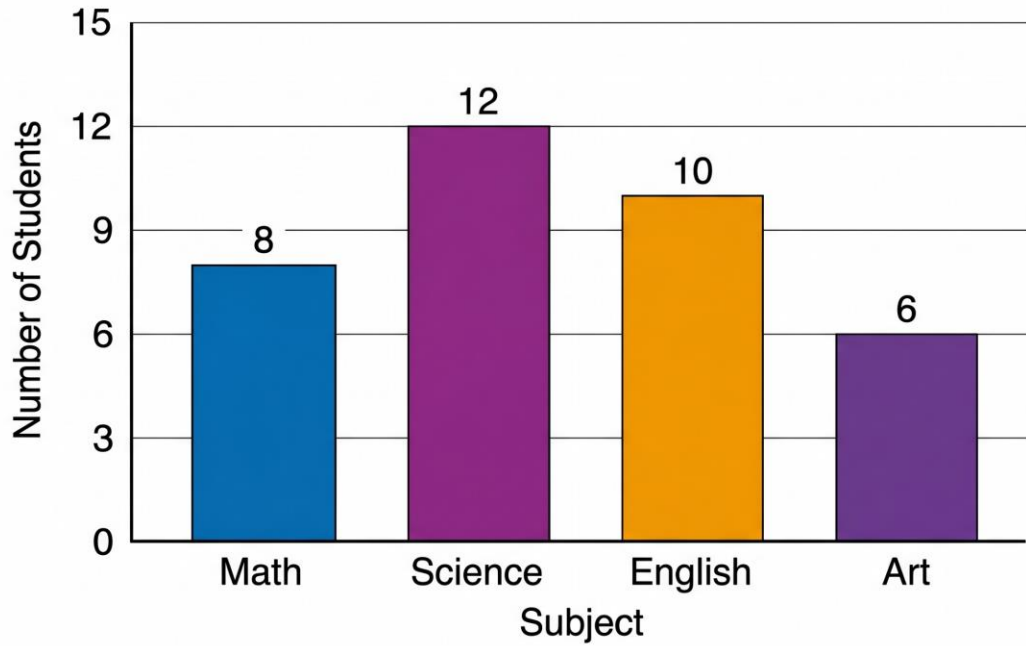
PRACTICE EXAM 10: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) What is the place value of the digit 6 in the number 7,648,392?
A) 6,000
B) 60,000
C) 60
D) 600,000
2. (Algebra) A pattern follows the rule "add 9 each time." If the first term is 15, what is the 5th term?
A) 51
B) 60
C) 45
D) 36
3. (Spatial Sense) Which 3D solid has 1 circular base and a curved surface that comes to a single point?
A) Cylinder
B) Sphere
C) Cone
D) Pyramid
4. (Number Sense) Calculate: $38.6 + 17.45$
A) 55.05

- B) 56.05
- C) 56.51
- D) 54.95

5. (Data Literacy) A class survey shows favorite subjects of students in the graph below.



How many fewer students chose Art than Science?

- A) 4
- B) 8
- C) 12
- D) 6

6. (Number Sense) Which fraction is less than $\frac{5}{8}$?

- A) $\frac{1}{2}$
- B) $\frac{7}{10}$
- C) $\frac{3}{4}$
- D) $\frac{11}{16}$

7. (Financial Literacy) Daniel earns \$8.50 per hour mowing lawns. How much will he earn for working 6 hours?

- A) \$48.00
- B) \$50.00
- C) \$51.00
- D) \$52.50

8. (Algebra) Solve for n : $n \times 7 = 56$

- A) 7
- B) 8
- C) 49
- D) 9

9. (Spatial Sense) What is the measure of a right angle?

- A) 90°
- B) 180°
- C) 45°
- D) 60°

10. (Number Sense) What is $6/10$ written as a percent?

- A) 6%
- B) 16%
- C) 0.6%
- D) 60%

11. (Algebra) Which expression represents "8 less than the product of 4 and a number x "?

- A) $8 - 4x$
- B) $4(x - 8)$
- C) $4x - 8$

D) $8x - 4$

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 56×9

A) 484

B) 504

C) 524

D) 564

13. (Spatial Sense) A regular octagon has each side measuring 6 cm. What is its perimeter?

A) 48 cm

B) 36 cm

C) 56 cm

D) 60 cm

14. (Data Literacy) Six values were recorded in a survey: 25, 30, 25, 40, 35, 25. What is the mode?

A) 30

B) 35

C) 25

D) 40

15. (Number Sense) Calculate: $945 \div 9$

A) 95

B) 115

C) 125

D) 105

16. (Algebra) Evaluate the expression $6t + 4$ when $t = 9$.

- A) 54
- B) 58
- C) 60
- D) 50

17. (Financial Literacy) A bookstore sells a book for \$25. With a 20% discount, what is the sale price?

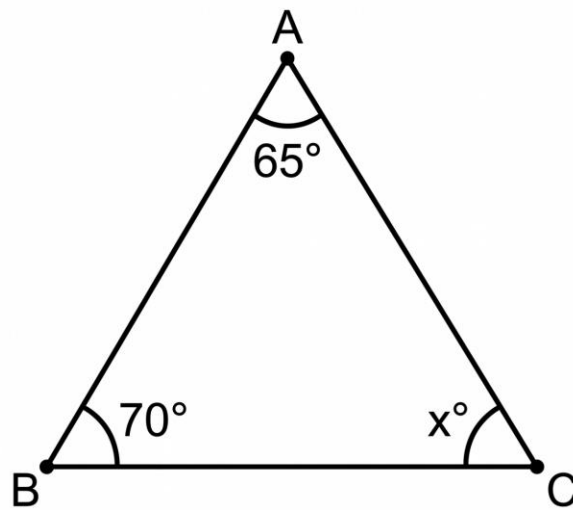
- A) \$20.00
- B) \$5.00
- C) \$22.50
- D) \$30.00

18. (Number Sense) Which fraction is equivalent to $14/21$?

- A) $1/3$
- B) $3/4$
- C) $2/3$
- D) $4/7$

19. (Spatial Sense) The diagram shows a triangle with three angles labeled.

[Figure PQ-2]



What is the value of angle x ?

- A) 65°
- B) 70°
- C) 50°
- D) 45°

20. (Data Literacy) A bag contains 18 marbles: 6 red, 5 blue, 4 green, and 3 yellow. What is the probability of drawing a yellow marble?

- A) $5/18$
- B) $3/18$
- C) $4/18$
- D) $6/18$

21. (Algebra) What is the next number in this sequence: 1, 4, 9, 16, 25, ___?

- A) 30
- B) 32
- C) 36

D) 48

22. (Number Sense) Convert 9.2 meters to centimeters.

A) 920 cm

B) 92 cm

C) 9,200 cm

D) 0.092 cm

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) A triangle has vertices at A(2, 3), B(5, 3), and C(4, 6). The triangle is translated 3 units right and 2 units down. What are the new coordinates of vertex A?

A) (-1, 5)

B) (5, 5)

C) (-1, 1)

D) (5, 1)

24. (Number Sense) Calculate: $\frac{2}{3} + \frac{3}{4}$

A) $\frac{5}{7}$

B) $\frac{17}{12}$

C) $\frac{6}{12}$

D) $\frac{7}{12}$

25. (Algebra) Solve for x: $6x - 7 = 35$

A) 5

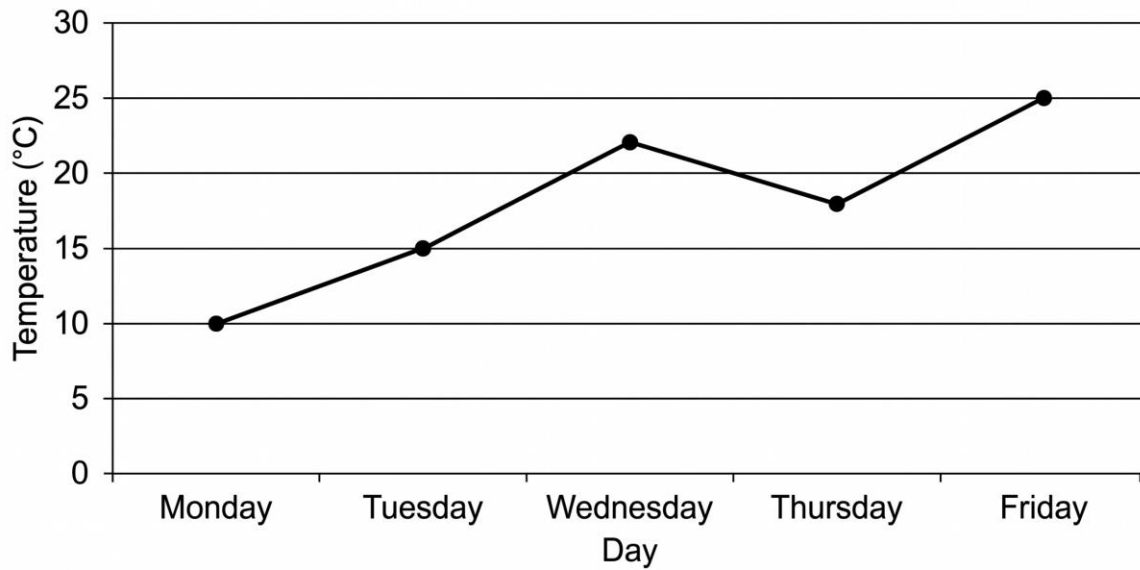
B) 6

C) 7

D) 8

26. (Data Literacy) The line graph shows the temperature changes over five days.

[Figure PQ-3:



On which day was the temperature exactly 15°C?

- A) Tuesday
- B) Wednesday
- C) Friday
- D) Monday

27. (Number Sense) Calculate: 0.4×7

- A) 2.4
- B) 2.8
- C) 3.2
- D) 28

28. (Financial Literacy) Aiden deposits \$600 in a savings account at 5% simple interest per year. How much interest will he earn after 4 years?

- A) \$24
- B) \$30

- C) \$100
- D) \$120

29. (Spatial Sense) Which polygon has 8 sides?

- A) Hexagon
- B) Pentagon
- C) Octagon
- D) Decagon

30. (Algebra) A taxi service charges \$5 for the first kilometer plus \$1.50 for each additional kilometer. Which expression represents the cost for n additional kilometers?

- A) $5 + 1.5n$
- B) $5n + 1.5$
- C) $6.5n$
- D) $5(1.5 + n)$

31. (Number Sense) Evaluate: $4^2 + 3 \times 5 - 8$

- A) 17
- B) 22
- C) 28
- D) 23

32. (Data Literacy) Five test scores were recorded: 88, 76, 92, 85, 79. What is the mean?

- A) 82
- B) 84
- C) 85
- D) 88

33. (Spatial Sense) A rectangular prism has dimensions $9\text{ cm} \times 4\text{ cm} \times 6\text{ cm}$. What is its surface area?

- A) 108 cm^2
- B) 216 cm^2
- C) 228 cm^2
- D) 240 cm^2

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which integer is the smallest?

- A) -12
- B) -7
- C) -3
- D) 5

35. (Algebra) If $4n + 17 = 49$, what is the value of n ?

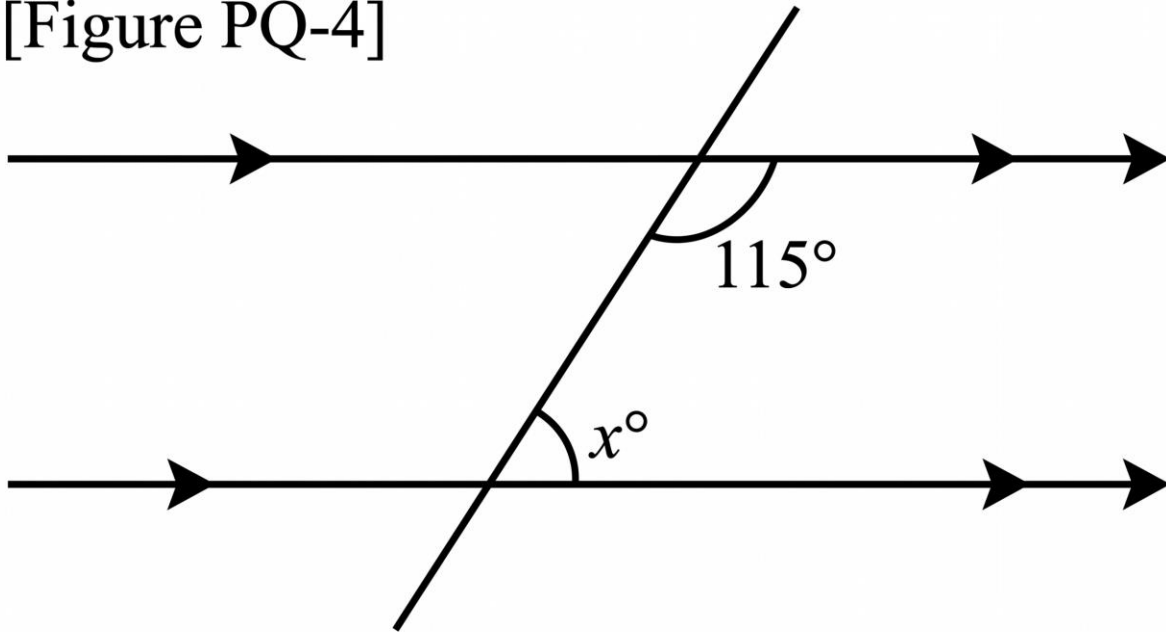
- A) 6
- B) 8
- C) 9
- D) 12

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

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

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

[Figure PQ-4]



What is the measure of angle x ?

- A) 65°
- B) 90°
- C) 115°
- D) 75°

38. (Number Sense) What is $\frac{3}{5}$ of 60?

- A) 36
- B) 30
- C) 40
- D) 45

39. (Financial Literacy) Emma wants to save \$480 in 8 months. How much should she save each month to reach her goal?

- A) \$50
- B) \$60
- C) \$70

D) \$80

40. (Algebra) A rectangle has width w . The length is 3 more than twice the width. Which expression represents the perimeter of the rectangle?

A) $2w + 3$

B) $6w + 3$

C) $4w + 3$

D) $6w + 6$

41. (Data Literacy) A frequency table shows: 5 appears 2 times, 6 appears 4 times, 7 appears 3 times, 8 appears 2 times, 9 appears 1 time. What is the mode?

A) 5

B) 7

C) 6

D) 8

42. (Data Literacy) What is the median of this data set: 12, 18, 20, 9, 15, 22, 11?

A) 18

B) 15

C) 12

D) 20

43. (Spatial Sense) A trapezoid has parallel sides measuring 8 cm and 12 cm, with a height of 5 cm. What is its area?

A) 50 cm^2

B) 60 cm^2

C) 25 cm^2

D) 40 cm^2

44. (Number Sense) A recipe calls for $\frac{3}{4}$ cup of flour. To make $\frac{2}{3}$ of the recipe, how much flour is needed?

- A) $\frac{5}{12}$ cup
- B) $\frac{4}{7}$ cup
- C) $\frac{9}{12}$ cup
- D) $\frac{1}{2}$ cup

Practice Exam 10: Answer Key and Explanations

1. D — The digit 6 occupies the hundred-thousands place in 7,648,392. Reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 6 sits in the sixth position with a value of $6 \times 100,000 = 600,000$. Place value determines a digit's worth based on its position within the number.

2. A — Starting at 15 and adding 9 repeatedly: term 1 = 15, term 2 = 24, term 3 = 33, term 4 = 42, term 5 = 51. This arithmetic sequence has a constant difference of +9. Identifying the common difference enables prediction of any specific term in the pattern.

3. C — A cone has exactly 1 circular base and a curved surface that tapers to a single point called the apex. Cylinders have two circular bases connected by a curved surface, spheres have only curved surface with no base, and pyramids have polygonal bases with triangular faces meeting at a point. Recognizing 3D shapes by their properties supports spatial reasoning.

4. B — Align decimal points and add: $38.60 + 17.45 = 56.05$. Writing 38.6 as 38.60 ensures matching decimal places. Proper alignment of place values is essential for accurate decimal operations in measurement and financial calculations.

5. D — Reading the bar graph, Science has 12 students and Art has 6 students. The difference is $12 - 6 = 6$ students. Comparing bar heights and calculating differences is fundamental to interpreting categorical data and answering "how many more" or "how many fewer" questions.

6. A — Convert fractions to decimals for comparison: $\frac{5}{8} = 0.625$, $\frac{1}{2} = 0.5$, $\frac{7}{10} = 0.7$, $\frac{3}{4} = 0.75$, $\frac{11}{16} = 0.6875$. Only $\frac{1}{2}$ (0.5) is less than $\frac{5}{8}$ (0.625). Converting fractions to decimals provides a straightforward comparison method.

7. C — Multiply hourly rate by hours worked: $\$8.50 \times 6 = \51.00 . Breaking down: $\$8 \times 6 = \48 , plus $\$0.50 \times 6 = \3.00 , totaling $\$51.00$. Accurate multiplication with decimals is essential for calculating earnings and other financial transactions.

8. B — Solve by dividing both sides by 7: $n \times 7 = 56 \rightarrow n = 56 \div 7 = 8$. Division is the inverse operation of multiplication, used to isolate the variable. Check: $8 \times 7 = 56 \checkmark$. One-step equations build foundational algebraic skills.

9. A — A right angle measures exactly 90° and is marked with a small square symbol at its vertex. Right angles form the corners of squares, rectangles, and perpendicular lines. Understanding angle types is essential for geometry, construction, and design.

10. D — Convert fraction to percent: $6/10 = 60/100 = 60\%$. Multiplying both numerator and denominator by 10 produces an equivalent fraction with denominator 100, which is the percent value. Percent means "per hundred," making this conversion straightforward.

11. C — "The product of 4 and x" translates to $4x$ (multiplication first), and "8 less than" means subtract 8 from that product, giving $4x - 8$. The phrase "less than" reverses subtraction order: the value being subtracted comes from the second part of the description.

12. B — Multiply using the distributive property: $56 \times 9 = (50 + 6) \times 9 = 450 + 54 = 504$. Breaking large multiplications into manageable parts using place value reduces calculation errors. Verification: $504 \div 9 = 56 \checkmark$.

13. A — A regular octagon has 8 equal sides. Perimeter equals the sum of all sides: $8 \times 6 = 48$ 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.

14. C — The mode is the value occurring most frequently in a dataset. In $\{25, 30, 25, 40, 35, 25\}$, the value 25 appears three times while all others appear only once, making 25 the mode. Mode identifies the most common occurrence in a dataset.

15. D — Divide 945 by 9: breaking this down, $900 \div 9 = 100$, plus $45 \div 9 = 5$, giving $100 + 5 = 105$. Verification: $9 \times 105 = 945 \checkmark$. Division efficiency improves with familiarity with multiplication facts and partial quotient strategies.

16. B — Substitute $t = 9$ into the expression $6t + 4$: $6(9) + 4 = 54 + 4 = 58$. Order of operations requires performing multiplication before addition per BEDMAS. Evaluating algebraic expressions connects symbolic algebra to numerical results.

17. A — Calculate the discount: 20% of $\$25 = 0.20 \times \$25 = \$5$. Subtract from original price: $\$25 - \$5 = \$20$. Recognizing that $20\% = 1/5$ enables quick mental calculation: $\$25 \div 5 = \5 discount. Sale price calculations support informed consumer decisions.

18. C — Simplify $14/21$ by dividing both numerator and denominator by their greatest common factor (7): $14/21 = (14 \div 7)/(21 \div 7) = 2/3$. Equivalent fractions represent the same value despite different appearance. Reducing fractions to simplest form supports easier comparison and operations.

19. D — The interior angles of any triangle sum to 180° . The third angle equals $180^\circ - 65^\circ - 70^\circ = 45^\circ$. This angle sum property holds for all triangles regardless of type, making it a powerful tool for finding missing angles in geometric problems.

- 20. B** — Probability equals favorable outcomes divided by total outcomes: $P(\text{yellow}) = 3 \text{ yellow marbles} / 18 \text{ total marbles} = 3/18$. This can simplify to $1/6$, but $3/18$ directly matches the listed answer choice. Probability values range from 0 (impossible) to 1 (certain).
- 21. C** — The pattern shows perfect squares: $1^2 = 1$, $2^2 = 4$, $3^2 = 9$, $4^2 = 16$, $5^2 = 25$, $6^2 = 36$. Each term represents the square of consecutive natural numbers. Recognizing square number patterns connects algebra to geometric area concepts.
- 22. A** — Convert meters to centimeters by multiplying by 100: $9.2 \text{ m} \times 100 = 920 \text{ cm}$. The metric system uses base-10 conversions, with 1 m equal to 100 cm. Moving from larger to smaller units requires multiplication, producing a larger numerical value for the same physical length.
- 23. D** — Apply translation to vertex A(2, 3): 3 units right adds 3 to x-coordinate ($2 + 3 = 5$); 2 units down subtracts 2 from y-coordinate ($3 - 2 = 1$). New coordinates: (5, 1). Translations slide shapes without rotating or reflecting them, preserving size and orientation.
- 24. B** — Find common denominator (12): $2/3 = 8/12$ and $3/4 = 9/12$. Add: $8/12 + 9/12 = 17/12$. This improper fraction equals $1 \frac{5}{12}$ as a mixed number. Like denominators are required for adding fractions so numerators represent parts of the same-sized whole.
- 25. C** — Solve the two-step equation: $6x - 7 = 35 \rightarrow$ add 7 to both sides: $6x = 42 \rightarrow$ divide both sides by 6: $x = 7$. Check: $6(7) - 7 = 42 - 7 = 35 \checkmark$. Two-step equations require systematic application of inverse operations.
- 26. A** — Reading the line graph, the Tuesday data point falls at 15°C on the y-axis. Identifying specific values on line graphs requires matching x-axis labels to corresponding y-axis values at each plotted point. Line graphs effectively show changes over time periods.
- 27. B** — Multiply 0.4×7 : think of 0.4 as 4 tenths, so $4 \text{ tenths} \times 7 = 28 \text{ tenths} = 2.8$. Alternatively, $4 \times 7 = 28$, then place decimal one position from right since 0.4 has one decimal place. Decimal multiplication requires careful attention to decimal point placement.
- 28. D** — Use the simple interest formula: $I = P \times r \times t = \$600 \times 0.05 \times 4 = \120 . Principal (\$600) times rate ($5\% = 0.05$) times time (4 years) gives interest earned. Simple interest calculates earnings only on the original principal, foundational for understanding savings growth.
- 29. C** — An octagon has 8 sides, with the prefix "octa-" meaning eight (as in octopus with 8 arms). A hexagon has 6 sides, a pentagon has 5 sides, and a decagon has 10 sides. Recognizing polygon names supports geometric reasoning and identification of shapes.
- 30. A** — The first kilometer costs \$5 (a fixed amount), and each additional kilometer adds \$1.50 to the cost. For n additional kilometers, the variable cost is $1.5n$, plus the \$5 base fare gives: $5 + 1.5n$. This linear expression models real-world pricing with fixed and variable components.

- 31. D** — Follow order of operations: exponent first: $4^2 = 16$; then multiplication: $3 \times 5 = 15$; finally add and subtract left to right: $16 + 15 - 8 = 31 - 8 = 23$. BEDMAS ensures consistent evaluation: exponents before multiplication before addition/subtraction.
- 32. B** — Calculate mean by summing all values and dividing by count: $(88 + 76 + 92 + 85 + 79) \div 5 = 420 \div 5 = 84$. 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.
- 33. C** — Surface area of rectangular prism: $SA = 2(lw) + 2(lh) + 2(wh) = 2(9 \times 4) + 2(9 \times 6) + 2(4 \times 6) = 72 + 108 + 48 = 228 \text{ cm}^2$. Each pair of opposite faces is congruent, so the formula doubles the area of three different face types. Surface area calculations determine material needs for wrapping or covering objects.
- 34. A** — On a number line, integers decrease as they move left from zero. Comparing -12, -7, -3, and 5: -12 has the largest absolute value among negatives, placing it farthest left, making it the smallest. With negative numbers, the larger the absolute value, the smaller the number.
- 35. B** — Solve: $4n + 17 = 49 \rightarrow$ subtract 17 from both sides: $4n = 32 \rightarrow$ divide both sides by 4: $n = 8$. Check: $4(8) + 17 = 32 + 17 = 49 \checkmark$. Two-step equation solving applies inverse operations systematically to isolate the variable.
- 36. D** — The probability of not blue equals total non-blue sections divided by total sections: $(3 + 2 + 3)/12 = 8/12 = 2/3$ in simplest form. Complementary probabilities (blue vs. not blue) always sum to 1: $4/12 + 8/12 = 12/12 = 1$.
- 37. C** — When two parallel lines are cut by a transversal, corresponding angles are equal. The angle of 115° and angle x occupy corresponding positions (both upper-right at their intersection points), making $x = 115^\circ$. This property enables calculation of unknown angles in parallel line configurations.
- 38. A** — Calculate $3/5$ of 60: multiply the fraction by the whole number: $(3/5) \times 60 = (3 \times 60)/5 = 180/5 = 36$. Alternatively, find $1/5$ of 60 (which is 12), then multiply by 3: $12 \times 3 = 36$. Finding fractional parts of whole numbers connects fractions to multiplication.
- 39. B** — Divide the savings goal by the number of months: $\$480 \div 8 = \60 per month. This calculation determines the regular monthly amount needed to reach a financial goal. Breaking large savings targets into manageable amounts supports financial planning.
- 40. D** — The length equals $2w + 3$ (3 more than twice the width). Perimeter = $2(\text{length}) + 2(\text{width}) = 2(2w + 3) + 2w = 4w + 6 + 2w = 6w + 6$. Combining like terms ($4w + 2w = 6w$) simplifies the expression. Perimeter formulas combine multiple sides into a single expression.
- 41. C** — The mode is the value with the highest frequency. From the frequency table, value 6 appears 4 times, more than any other value (5 appears 2 times, 7 appears 3 times, 8 appears 2 times, 9 appears 1 time). The mode is 6, the most commonly occurring value.

42. B — Order the values from least to greatest: 9, 11, 12, 15, 18, 20, 22. With 7 values (odd count), the median is the middle value at position 4, which is 15. Median represents the center of ordered data and is unaffected by extreme values, making it useful when outliers are present.

43. A — Area of a trapezoid = $(1/2) \times (\text{sum of parallel sides}) \times \text{height} = (1/2) \times (8 + 12) \times 5 = (1/2) \times 20 \times 5 = 50 \text{ cm}^2$. The trapezoid formula averages the parallel sides and multiplies by the perpendicular height. The height must be perpendicular to the parallel sides.

44. D — Calculate $2/3$ of $3/4$ by multiplying the fractions: $(3/4) \times (2/3) = (3 \times 2)/(4 \times 3) = 6/12 = 1/2$ cup in simplest form. When multiplying fractions, multiply numerators together and denominators together, then simplify. Scaling recipes requires proportional adjustment of all ingredients.