PRACTICE EXAM 7: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) Round 47,628 to the nearest thousand.

A) 48,000

B) 47,000

C) 50,000

D) 47,600

2. (Algebra) A pattern starts at 4 and multiplies by 3 each time. What is the 4th term?

A) 12

B) 36

C) 108

D) 324

3. (Spatial Sense) How many vertices does a triangular prism have?

A) 3

B) 4

C) 5

D) 6

4. (Number Sense) Calculate: 9.27 + 14.5

A) 22.77

B) 23.77

C) 22.32

D) 23.32

5. (Data Literacy) Six daily temperatures (°C) were recorded: 18, 22, 15, 18, 25, 20. What is the mode?

A) 18

B) 20

C) 22

D) 25

6. (Number Sense) Which fraction is greater than 3/4?

A) 2/3

B) 5/8

C) 7/8

D) 6/9

7. (Financial Literacy) A movie ticket costs $13. How much will 5 tickets cost?

A) $60

B) $65

C) $70

D) $75

8. (Algebra) Solve for w: w - 24 = 39

A) 15

B) 39

C) 24

D) 63

9. (Spatial Sense) An angle measures 35°. What type of angle is it?

A) Acute

B) Right

C) Obtuse

D) Reflex

10. (Number Sense) What is 20% of 150?

A) 25

B) 30

C) 35

D) 45

11. (Algebra) Which expression represents "six more than four times a number x"?

A) $6x + 4$

B) $6(x + 4)$

C) $4x + 6$

D) $4(x + 6)$

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: $504 \div 7$

A) 72

B) 74

C) 76

D) 78

13. (Spatial Sense) A rectangle has a length of 12 cm and a width of 8 cm. What is its perimeter?

A) 24 cm

B) 96 cm

C) 36 cm

D) 40 cm

14. (Data Literacy) A spinner has 10 equal sections: 3 yellow, 4 blue, 2 red, and 1 green. What is the probability of spinning blue?

A) 3/10

B) 4/10

C) 2/10

D) 1/10

15. (Number Sense) Which fraction is equivalent to 6/8?

A) 1/2

B) 2/3

C) 3/4

D) 4/5

16. (Algebra) Evaluate the expression 3n - 5 when n = 8.

A) 19

B) 21

C) 16

D) 24

17. (Financial Literacy) A sweater costs $50. The store offers a 15% discount. What is the discount amount?

A) $5.00

B) $10.00

C) $12.00

D) $7.50

18. (Number Sense) What is 0.45 written as a fraction in simplest form?

A) 45/100

B) 9/20

C) 4/5

D) 9/100

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

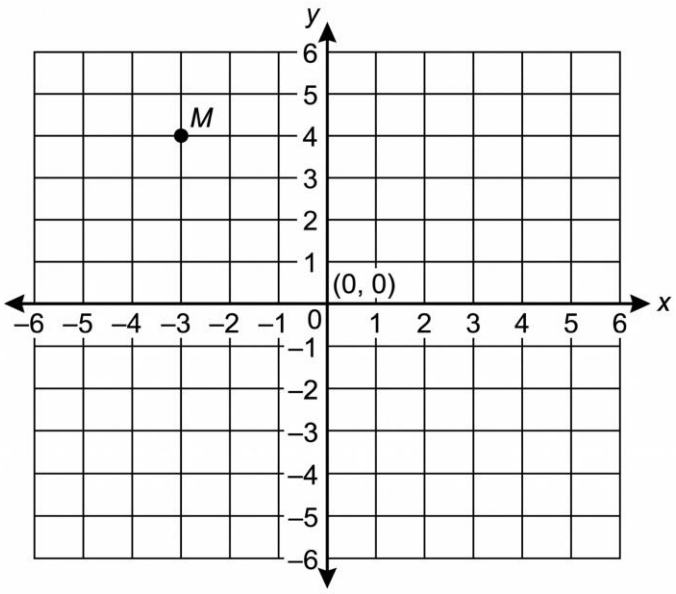


Figure PQ-1

What are the coordinates of point M?

A) (3, 4)

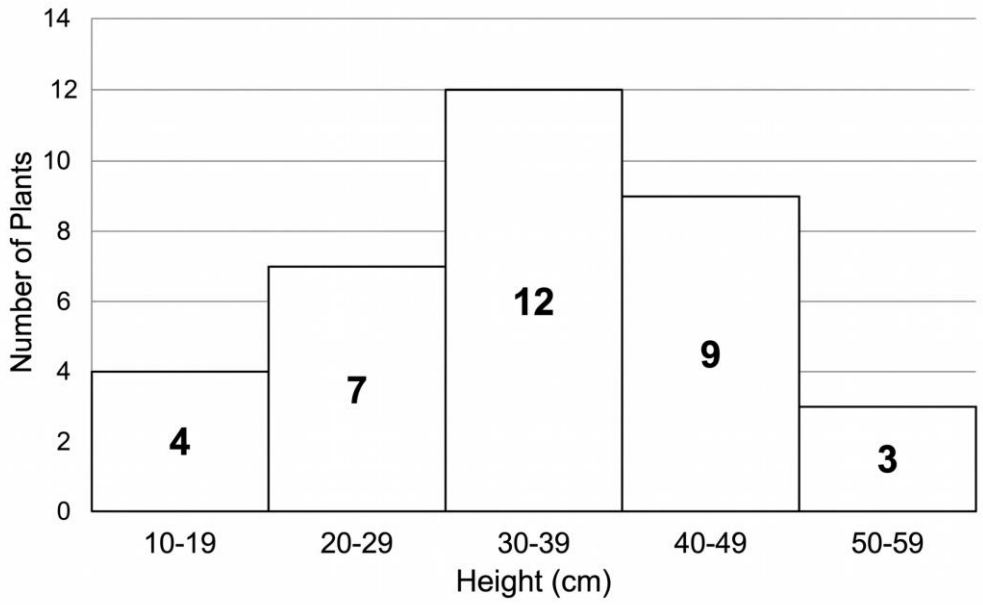
B) (-4, 3)

C) (-3, 4)

D) (4, -3)

20. (Data Literacy) The histogram shows the heights of plants measured in a garden.

[Figure PQ-2]



How many plants have heights in the 30-39 cm range?

A) 4

B) 7

C) 9

D) 12

21. (Algebra) What is the next term in this sequence: 100, 88, 76, 64, ___?

A) 56

B) 52

C) 48

D) 60

22. (Number Sense) Convert 4.5 kilometers to meters.

A) 4,500 m

B) 450 m

C) 45 m

D) 45,000 m

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) A triangle has vertices at (1, 2), (4, 2), and (3, 5). The triangle is translated 2 units left and 3 units down. What are the new coordinates of the vertex originally at (3, 5)?

A) (5, 8)

B) (5, 2)

C) (1, 2)

D) (1, 8)

24. (Number Sense) Calculate: 3/4 - 1/6

A) 2/2

B) 2/10

C) 5/12

D) 7/12

25. (Algebra) Solve for x: 2x + 11 = 25

A) 5

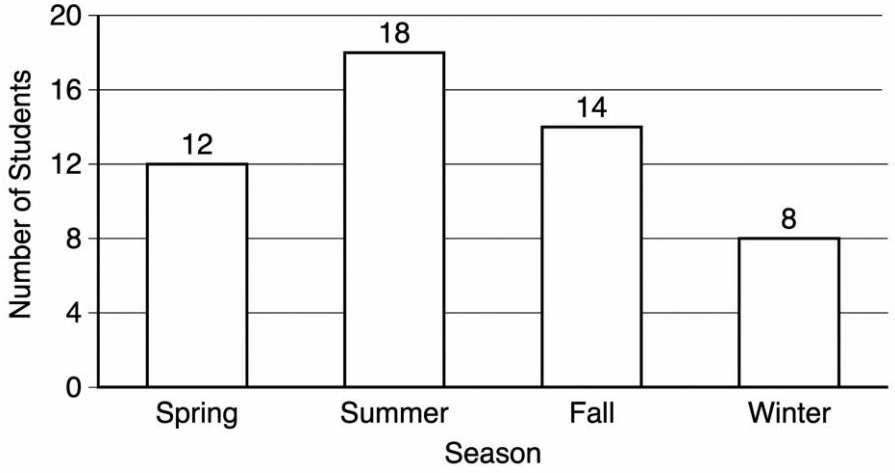
B) 7

C) 9

D) 12

26. (Data Literacy) The bar graph shows favorite seasons of students surveyed.

Figure PQ-3



How many more students chose summer than winter?

A) 10

B) 18

C) 8

D) 14

27. (Number Sense) Calculate: 24 ÷ (8 - 2) × 3

A) 9

B) 1

C) 12

D) 36

28. (Financial Literacy) Sara invests $300 in a savings account at 5% simple interest per year. How much interest will she earn after 3 years?

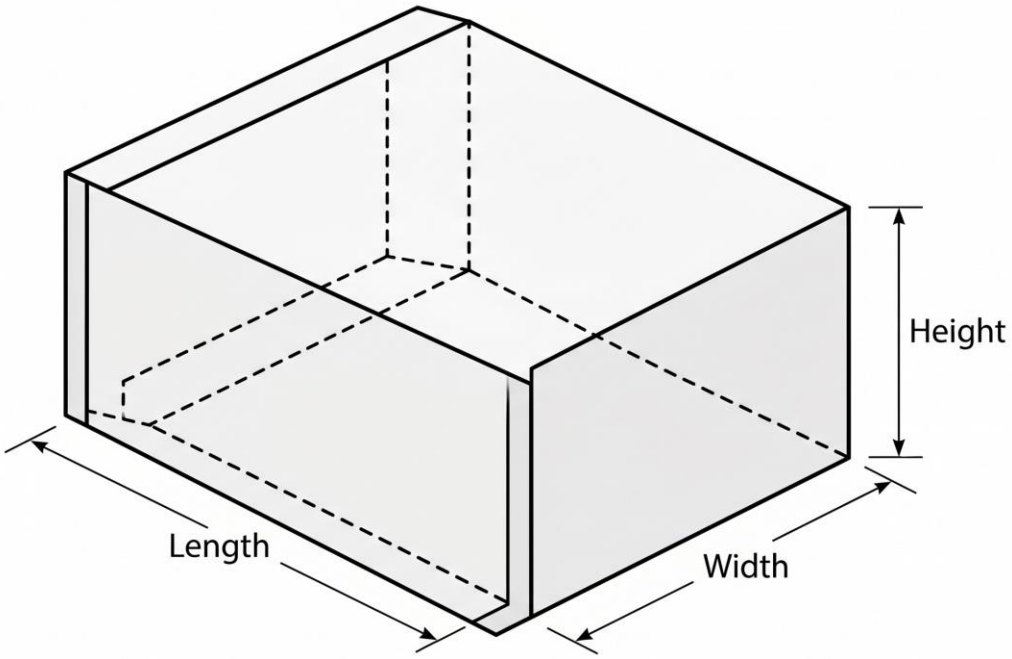
A) $15

B) $30

C) $50

D) $45

29. (Spatial Sense) The figure shows a three-dimensional solid.



How many faces does this solid have?

A) 4

B) 6

C) 8

D) 12

30. (Algebra) Which rule describes the sequence: 5, 10, 20, 40, 80, ...?

A) Multiply by 2 each time

B) Add 5 each time

C) Multiply by 5 each time

D) Add 10 each time

31. (Number Sense) Which integer is the greatest?

A) -3

B) -10

C) 0

D) -5

32. (Data Literacy) Five test scores were recorded: 78, 85, 92, 81, 89. What is the mean?

A) 80

B) 85

C) 89

D) 81

33. (Spatial Sense) A parallelogram has a base of 14 cm and a height of 6 cm. What is its area?

A) 20 cm^2

B) 40 cm^2

C) 56 cm^2

D) 84 cm^2

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which percent is equivalent to 3/5?

A) 60%

B) 65%

C) 35%

D) 55%

35. (Algebra) Which expression represents the total cost (in dollars) of buying 4 books at $b each plus 1 magazine that costs $5?

A) 4 + 5b

B) 4b - 5

C) 4b + 5

D) 5b + 4

36. (Data Literacy) A set of values is: 35, 42, 28, 56, 40, 31. What is the range?

A) 21

B) 28

C) 35

D) 56

37. (Spatial Sense) A triangle has two angles measuring 45° and 65°. What is the measure of the third angle?

A) 50°

B) 80°

C) 90°

D) 70°

38. (Number Sense) Evaluate: $6 + 4^2 \div 2$

A) 14

B) 22

C) 50

D) 10

39. (Financial Literacy) A school store sells pencils for $2 each. If Aiden buys 8 pencils, how much does he spend?

A) $10

B) $12

C) $16

D) $20

40. (Algebra) A rectangle has length L and width W. The length is 4 less than 3 times the width. Which expression represents the length?

A) 4 - 3W

B) 3(W - 4)

C) 3W + 4

D) 3W - 4

41. (Number Sense) Which number makes this statement true? 4/5 = ?/30

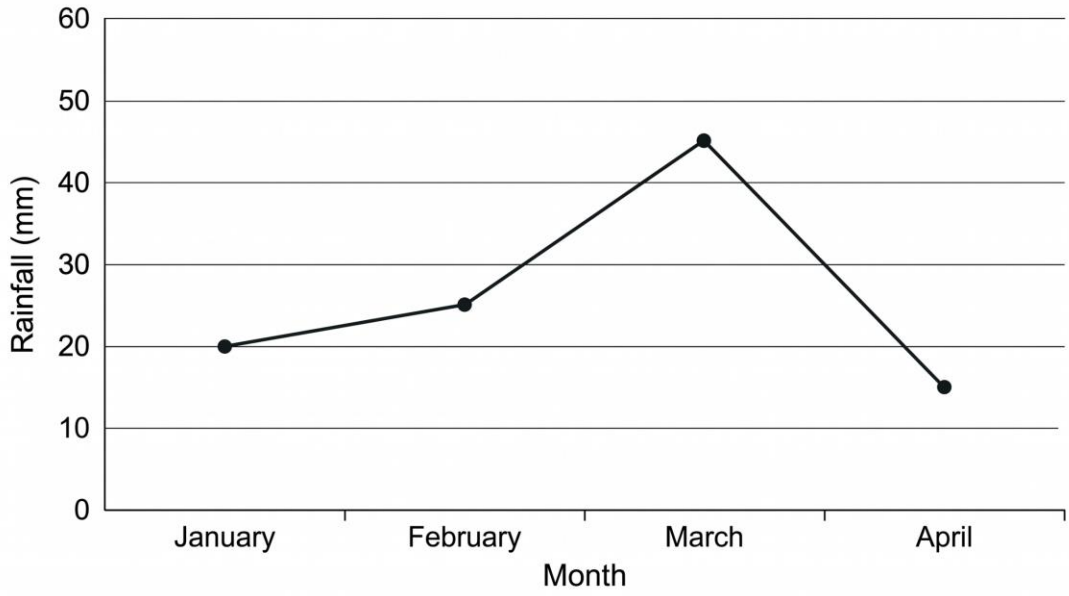
A) 20

B) 24

C) 25

D) 26

42. (Data Literacy) The line graph shows monthly rainfall over four months.



During which month was the rainfall greatest?

A) January

B) February

C) March

D) April

43. (Spatial Sense) A square has sides of 9 cm. What is its area?

A) 81 cm²

B) 36 cm²

C) 18 cm²

D) 27 cm²

44. (Data Literacy) What is the probability of rolling a number greater than 4 on a standard six-sided die?

A) 1/6

B) 1/4

C) 1/2

D) 1/3

Practice Exam 7: Answer Key and Explanations

1. A — Rounding to the nearest thousand requires examining the hundreds digit. In 47,628, the hundreds digit is 6, which is 5 or greater, so the thousands digit rounds up from 7 to 8, giving 48,000. Rounding helps estimate and simplify numbers for practical calculations like budgeting or measurement.

2. C — Starting at 4 and multiplying by 3 produces: term 1 = 4, term 2 = 12, term 3 = 36, term 4 = 108. This geometric sequence has a common ratio of 3, where each term is three times the previous one. Tracking each multiplication step ensures accurate identification of any term position.

3. D — A triangular prism has 6 vertices total: each of its two triangular bases contributes 3 vertices, and these connect through the rectangular lateral faces. Counting vertices systematically by examining each base separately prevents miscounting. Understanding 3D shape properties supports volume and surface area calculations.

4. B — Align decimal points and add: 9.27 + 14.50 = 23.77. Writing 14.5 as 14.50 ensures matching decimal places for accurate addition. Proper alignment of place values is essential for decimal operations in measurement, financial calculations, and scientific contexts.

5. A — The mode is the value occurring most frequently in a dataset. In {18, 22, 15, 18, 25, 20}, the value 18 appears twice while all other values appear only once, making 18 the mode. Mode identifies the most common occurrence and is useful for analyzing typical values.

6. C — Convert 3/4 to a decimal (0.75) for comparison: 2/3 ≈ 0.67, 5/8 = 0.625, 7/8 = 0.875, 6/9 ≈ 0.67. Only 7/8 (0.875) is greater than 0.75. Comparing fractions becomes straightforward when converted to decimals or to a common denominator.

7. B — Multiply unit price by quantity: $13 × 5 = $65. Breaking down the calculation: $13 × 5 = ($10 × 5) + ($3 × 5) = $50 + $15 = $65. Multiplication enables quick calculation of total costs based on per-unit pricing, fundamental to consumer math.

8. D — Solve by adding 24 to both sides: w - 24 = 39 → w = 39 + 24 = 63. Addition is the inverse operation of subtraction, used to isolate the variable. Check: 63 - 24 = 39 ✓. One-step equations build foundational algebraic skills.

9. A — Acute angles measure greater than 0° but less than 90°. An angle of 35° falls within this range, making it acute. Right angles measure exactly 90°, obtuse angles measure between 90° and 180°, and reflex angles exceed 180°. Classifying angles is essential for geometric reasoning.

10. B — Calculate 20% of 150: convert percent to decimal (20% = 0.20) and multiply: 0.20 × 150 = 30. Alternatively, recognize 20% = 1/5, so 150 ÷ 5 = 30. Percent calculations underpin discounts, taxes, tips, and statistical analysis in daily life.

11. C — "Four times a number x" translates to 4x (multiplication first), and "six more than" means add 6, giving 4x + 6. Translating verbal expressions requires identifying operations in order: multiplication terms are formed first, then addition modifies the result. Order matters when phrases include "more than."

12. A — Divide 504 by 7: 504 ÷ 7 = 72. Breaking the calculation down: 490 ÷ 7 = 70, plus 14 ÷ 7 = 2, giving 70 + 2 = 72. Verification: 7 × 72 = 504 ✓. Division efficiency improves with knowledge of multiplication facts and partial quotient strategies.

13. D — Perimeter of a rectangle = 2(length) + 2(width) = 2(12) + 2(8) = 24 + 16 = 40 cm. The perimeter formula accounts for both pairs of equal opposite sides. This measurement determines the total distance around a shape, useful for fencing, framing, or border calculations.

14. B — Probability equals favorable outcomes divided by total outcomes: P(blue) = 4 blue sections / 10 total sections = 4/10. This can simplify to 2/5, but 4/10 directly matches the listed answer choice. Probability values range from 0 (impossible) to 1 (certain).

15. C — Simplify 6/8 by dividing both numerator and denominator by their greatest common factor (2): 6/8 = (6÷2)/(8÷2) = 3/4. Equivalent fractions represent the same value despite different appearance. Reducing fractions to simplest form supports easier comparison and operations.

16. A — Substitute n = 8 into the expression 3n - 5: 3(8) - 5 = 24 - 5 = 19. Order of operations requires performing multiplication before subtraction per BEDMAS. Evaluating expressions connects symbolic algebra to numerical results, foundational for problem-solving.

17. D — Calculate 15% of $50: 0.15 × $50 = $7.50. The discount amount represents the reduction in price, not the final sale price. Recognizing that 10% = $5.00 and 5% = $2.50 supports mental calculation: $5.00 + $2.50 = $7.50. Percent calculations are central to consumer mathematics.

18. B — Convert 0.45 to a fraction: 0.45 = 45/100. Simplify by dividing both numerator and denominator by their greatest common factor (5): 45/100 = 9/20. Decimal-to-fraction conversion requires placing the decimal over the appropriate power of 10, then reducing to lowest terms.

19. C — Point M is located 3 units left of the origin (negative x-direction) and 4 units above (positive y-direction), giving coordinates (-3, 4). The x-coordinate represents horizontal position and the y-coordinate represents vertical position. This places M in Quadrant II.

20. D — Reading the histogram, the bar for the 30-39 cm range reaches a height of 12 plants. Histograms display frequency distributions for grouped continuous data, with bar height representing the count within each interval. Identifying values requires careful reading of both axes.

21. B — The pattern subtracts 12 each time: 100 → 88 (-12), 88 → 76 (-12), 76 → 64 (-12), 64 → 52 (-12). This arithmetic sequence has a constant difference of -12. Identifying the common difference between consecutive terms enables prediction of any future term.

22. A — Convert kilometers to meters by multiplying by 1,000: 4.5 km × 1,000 = 4,500 m. The metric system's base-10 structure makes conversions straightforward—1 km equals 1,000 m. Moving from larger to smaller units requires multiplication, increasing the numerical value.

23. C — Apply translation to vertex (3, 5): 2 units left subtracts 2 from x-coordinate (3 - 2 = 1); 3 units down subtracts 3 from y-coordinate (5 - 3 = 2). New coordinates: (1, 2). Translations slide shapes without rotating or reflecting them, preserving size and orientation.

24. D — Find common denominator (12): 3/4 = 9/12 and 1/6 = 2/12. Subtract: 9/12 - 2/12 = 7/12. Like denominators are required for adding or subtracting fractions so numerators represent parts of the same-sized whole. The fraction 7/12 is already in simplest form.

25. B — Solve the two-step equation: 2x + 11 = 25 → subtract 11 from both sides: 2x = 14 → divide both sides by 2: x = 7. Check: 2(7) + 11 = 14 + 11 = 25 ✓. Two-step equations apply inverse operations in reverse order of operations to isolate the variable.

26. A — Reading the bar graph, summer reached 18 students and winter reached 8 students. Subtract: 18 - 8 = 10 more students chose summer. Comparing bar heights and finding differences is fundamental to interpreting categorical data displays.

27. C — Apply order of operations: brackets first: (8 - 2) = 6; then division and multiplication left to right: 24 ÷ 6 = 4, then 4 × 3 = 12. BEDMAS requires parentheses first, then division/multiplication from left to right. Skipping or reordering operations produces incorrect results.

28. D — Use the simple interest formula: I = P × r × t = \$300 × 0.05 × 3 = \$45. Principal (\$300) times rate (5% = 0.05) times time (3 years) gives interest earned. Simple interest calculates earnings only on the original principal, foundational for understanding savings growth.

29. B — A rectangular prism has 6 faces: top, bottom, front, back, and two sides. Opposite faces are congruent rectangles. Understanding face count supports surface area calculations and net construction. The familiar shape of a cardboard box exemplifies the 6-face structure.

30. A — Each term is twice the previous one: $5 \times 2 = 10$, $10 \times 2 = 20$, $20 \times 2 = 40$, $40 \times 2 = 80$. The constant ratio of 2 identifies this as a geometric sequence with multiplication rule. Recognizing the multiplicative relationship distinguishes geometric patterns from arithmetic ones.

31. C — Comparing the values: 0, -3, -5, and -10. The greatest is 0 because all other values are negative (below zero on the number line). With negative numbers, the smaller the absolute value, the greater the number; zero is greater than any negative value.

32. B — Calculate mean by summing values and dividing by count: $(78 + 85 + 92 + 81 + 89) \div 5 = 425 \div 5 = 85$. The mean represents the central balancing point of the dataset. Mean is the most commonly used measure of central tendency in statistical analysis.

33. D — Area of parallelogram: $A = \text{base} \times \text{height} = 14 \times 6 = 84\ \text{cm}^2$. The height must be perpendicular to the base, not the slant side length. Parallelograms have the same area formula as rectangles because the slanted shape can be rearranged into a rectangle with identical dimensions.

34. A — Convert 3/5 to a percent by finding an equivalent fraction with denominator 100: $3/5 = 60/100 = 60\%$. Multiplying both numerator and denominator by 20 reaches hundredths. Alternatively, $3 \div 5 = 0.6 = 60\%$. Percent means "per hundred," making this conversion straightforward.

35. C — Multiply the number of books by their price (4b for 4 books at \$b each), then add the cost of the magazine (\$5): $4b + 5$. Linear expressions like this combine variable terms (variable costs) with constant terms (fixed costs), modeling many real-world purchasing situations.

36. B — Range equals maximum minus minimum: maximum = 56, minimum = 28, so range = 56 - 28 = 28. 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.

37. D — The interior angles of any triangle sum to 180°. The third angle equals 180° - 45° - 65° = 70°. This angle sum property holds for all triangles regardless of type, making it a powerful tool for finding missing angles when two are known.

38. A — Follow order of operations: exponent first: $4^2 = 16$; then division: $16 \div 2 = 8$; finally addition: $6 + 8 = 14$. BEDMAS dictates this sequence—exponents before division before addition. Each operation must be performed in correct order to reach the right result.

39. C — Multiply quantity by unit price: 8 pencils × \$2 = \$16. Multiplication enables quick total cost calculation when items have a uniform price. This essential skill supports daily financial transactions and shopping decisions.

40. D — "Three times the width" translates to 3W (multiplication first), and "4 less than" means subtract 4 from the previous expression, producing 3W - 4. The phrase "less than" reverses subtraction order: the value being described comes after subtracting 4 from 3W.

41. B — The denominator changes from 5 to 30, multiplying by 6 ($5 \times 6 = 30$). Apply the same factor to the numerator: $4 \times 6 = 24$. Therefore, $4/5 = 24/30$. Equivalent fractions are created by multiplying or dividing both parts by the same value, preserving the ratio.

42. C — Reading the line graph, March reaches 45 mm of rainfall, higher than January (20 mm), February (25 mm), or April (15 mm). Identifying peak values on line graphs requires comparing all plotted points. Line graphs effectively show changes over time periods.

43. A — Area of a square equals side length squared: $A = s^2 = 9^2 = 9 \times 9 = 81$ cm². Squaring the side gives area in square units. The formula reflects that a square's two equal dimensions multiply together to determine the enclosed two-dimensional space.

44. D — A standard six-sided die has numbers 1 through 6. Numbers greater than 4 are 5 and 6, giving 2 favorable outcomes out of 6 total: $2/6 = 1/3$. Probability simplification expresses chance in lowest terms. The probability of rolling greater than 4 equals 1/3.