PRACTICE EXAM 5: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) In the number 3,847,521, what is the value of the digit 8?

A) 8,000

B) 80,000

C) 800,000

D) 8,000,000

2. (Algebra) A pattern starts at 5 and follows the rule "add 6 each time." What is the 7th term in this pattern?

A) 35

B) 47

C) 53

D) 41

3. (Spatial Sense) A solid figure has 2 circular bases and 1 curved surface. What is the name of this solid?

A) Cylinder

B) Cone

C) Sphere

D) Prism

4. (Number Sense) Calculate: 18.42 - 9.67

A) 9.25

B) 8.75

C) 9.35

D) 8.85

5. (Data Literacy) Seven students recorded their daily reading times in minutes: 25, 40, 30, 25, 45, 30, 30. What is the median?

A) 25

B) 35

C) 30

D) 40

6. (Number Sense) Which fraction is equivalent to 0.45?

A) 9/20

B) 45/10

C) 4/5

D) 9/25

7. (Financial Literacy) Ahmed earns $14.50 per hour. How much does he earn for working 8 hours?

A) $108.00

B) $114.00

C) $122.00

D) $116.00

8. (Algebra) Solve for d: d - 17 = 25

A) 8

B) 42

C) 32

D) 12

9. (Spatial Sense) Which type of angle measures more than 180° but less than 360°?

A) Right angle

B) Straight angle

C) Reflex angle

D) Obtuse angle

10. (Number Sense) What is 75% of 200?

A) 150

B) 125

C) 175

D) 100

11. (Algebra) The expression 25 - 3h represents the amount of water remaining in a tank after h hours. What does the 3 represent?

A) The starting amount of water

B) The rate at which water leaves per hour

C) The total time elapsed

D) The number of tanks being filled

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 246 × 7

A) 1,622

B) 1,742

C) 1,682

D) 1,722

13. (Spatial Sense) A rectangular room has a length of 9 m and a width of 7 m. What is the perimeter of the room?

A) 32 m

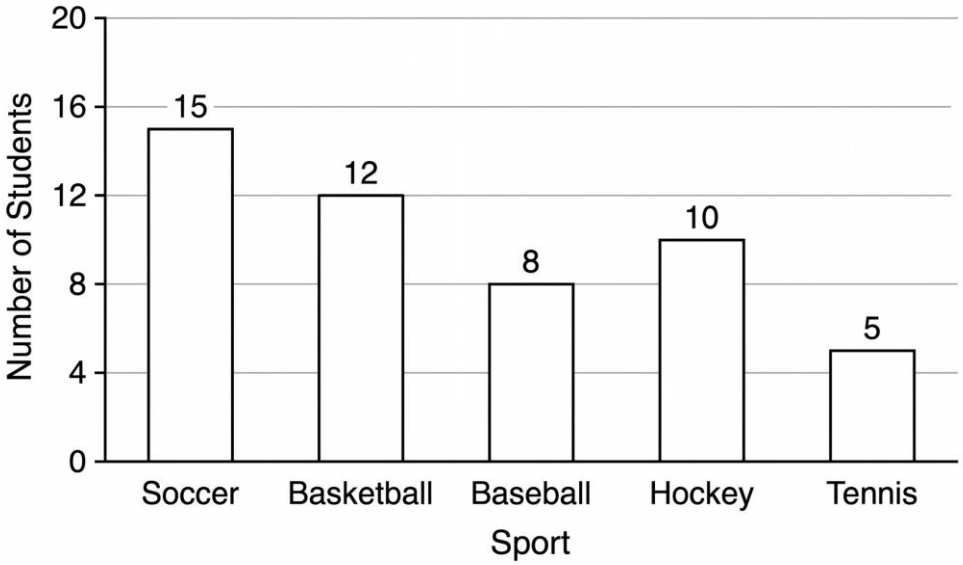
B) 16 m

C) 63 m

D) 48 m

14. (Data Literacy) The bar graph shows the favorite sports of 50 students surveyed.

Figure PQ-1



How many more students chose soccer than tennis?

A) 5

B) 15

C) 10

D) 20

15. (Number Sense) Calculate: 672 ÷ 8

A) 76

B) 84

C) 96

D) 88

16. (Algebra) Evaluate the expression $4y^2$ when $y = 3$.

A) 12

B) 24

C) 81

D) 36

17. (Financial Literacy) A laptop costs $850. It is on sale for 20% off. What is the sale price?

A) $170

B) $830

C) $680

D) $750

18. (Number Sense) Which number is between 4/5 and 1?

A) 0.92

B) 0.74

C) 0.65

D) 1.05

19. (Spatial Sense) A rectangular prism has dimensions 7 cm × 4 cm × 3 cm. What is its volume?

A) 28 cm^3

B) 84 cm^3

C) 56 cm^3

D) 144 cm^3

20. (Data Literacy) A frequency table shows test scores for 25 students. The scores 60-69 had 4 students, 70-79 had 8 students, 80-89 had 9 students, and 90-100 had 4 students. Which range had the highest frequency?

A) 60-69

B) 70-79

C) 90-100

D) 80-89

21. (Algebra) What is the next number in this sequence: 3, 9, 15, 21, 27, ___?

A) 33

B) 36

C) 31

D) 30

22. (Number Sense) Convert 5.6 meters to centimeters.

A) 56 cm

B) 5,600 cm

C) 560 cm

D) 0.056 cm

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) Point T is located at (-5, 3) on a coordinate grid. Point T is translated 8 units right and 2 units down. What are the new coordinates?

A) (-3, 5)

B) (3, 1)

C) (-13, 5)

D) (3, 5)

24. (Number Sense) Calculate: 2/3 + 1/4

A) 3/7

B) 7/8

C) 8/12

D) 11/12

25. (Algebra) Solve for x: 3x + 8 = 35

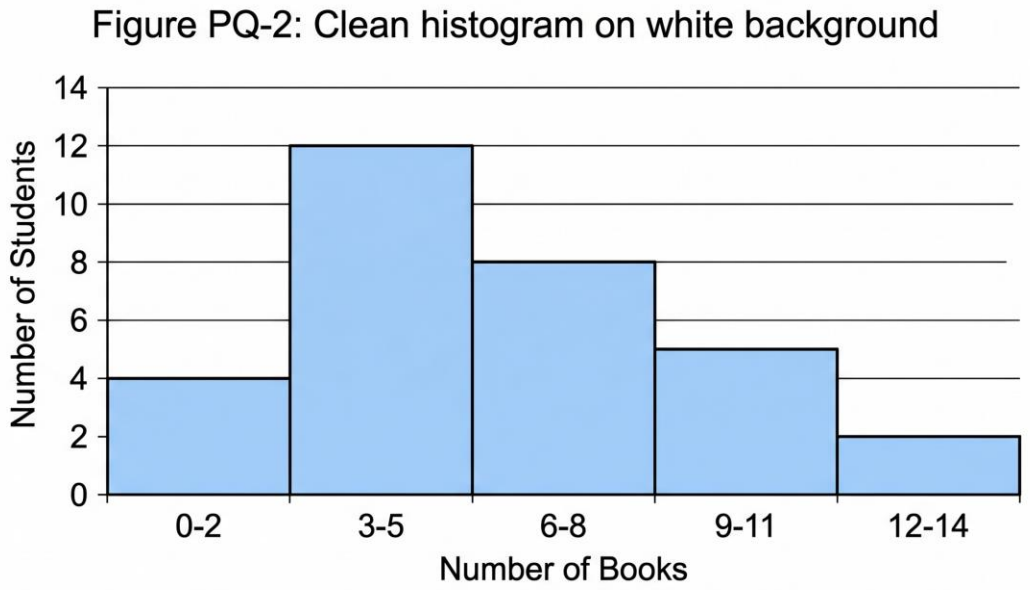
A) 9

B) 11

C) 27

D) 12

26. (Data Literacy) The histogram shows the number of books read by students during the summer.



How many students read between 3 and 5 books?

A) 4

B) 8

C) 12

D) 5

27. (Number Sense) Convert 7/10 to a percent.

A) 7%

B) 17%

C) 77%

D) 70%

28. (Financial Literacy) Maria deposits $750 in a savings account that pays 4% simple interest per year. How much interest will she earn after 2 years?

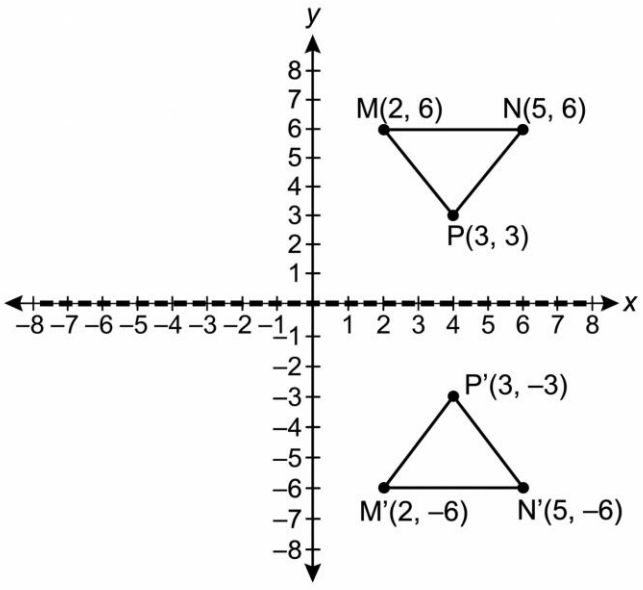
A) $30

B) $60

C) $75

D) $90

29. (Spatial Sense) The figure shows triangle MNP reflected across the x-axis.



[Figure PQ-3] Reflection across the *x*-axis

What are the coordinates of point P'?

A) (3, -3)

B) (-3, 3)

C) (-3, -3)

D) (3, 3)

30. (Algebra) Which expression represents "twice a number, decreased by 11"?

A) 11 - 2n

B) 2(n - 11)

C) 2n - 11

D) n/2 - 11

31. (Number Sense) Calculate: 9 + 4 × (12 - 8)

A) 52

B) 25

C) 33

D) 28

32. (Data Literacy) The values in a dataset are: 17, 23, 19, 28, 15, 21. What is the range?

A) 6

B) 23

C) 17

D) 13

33. (Spatial Sense) How many faces does a hexagonal prism have?

A) 8

B) 6

C) 12

D) 10

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which integer is closest to zero?

A) -5

B) -8

C) -2

D) -12

35. (Algebra) If 5n + 7 = 47, what is the value of n?

A) 9

B) 7

C) 10

D) 8

36. (Data Literacy) A bag contains 24 candies: 10 red, 8 green, 4 blue, and 2 yellow. What is the probability of randomly picking a green candy?

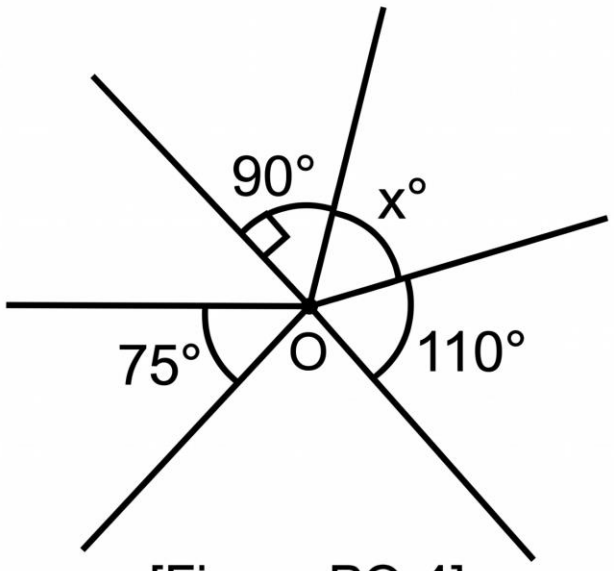
A) 4/24

B) 1/3

C) 10/24

D) 2/24

37. (Spatial Sense) The diagram shows angles around a point.



[Figure PQ-4]

What is the value of x?

A) 105°

B) 90°

C) 85°

D) 95°

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

A) 35

B) 25

C) 23

D) 39

39. (Financial Literacy) Emma sets a goal to save $480 in 8 months. How much should she save each month to meet her goal?

A) $48

B) $80

C) $40

D) $60

40. (Algebra) A taxi charges a flat fee of $5 plus $2 per kilometer driven. Which expression represents the total cost for k kilometers?

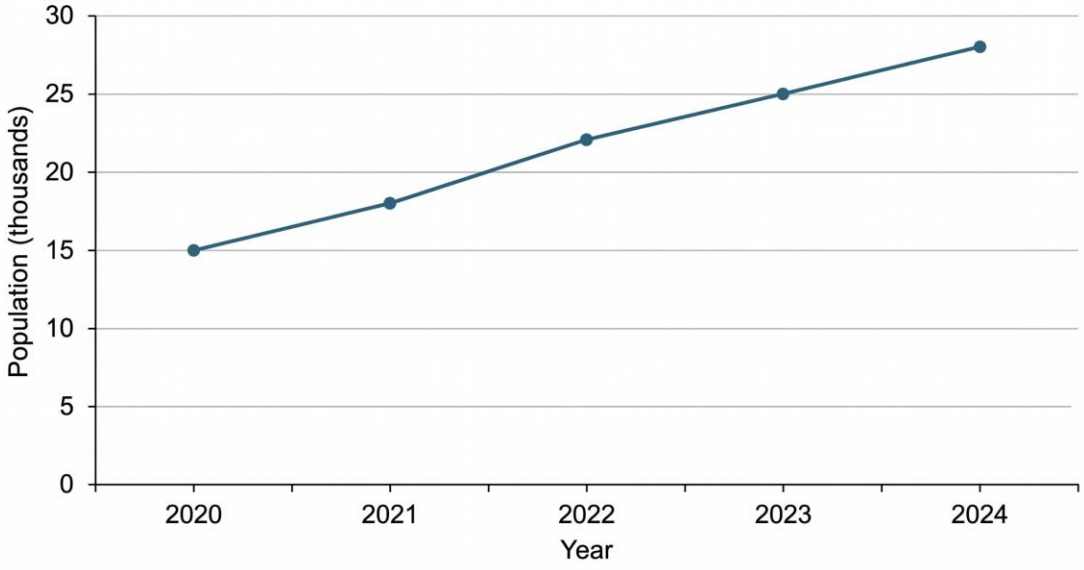
A) 5k + 2

B) 5 + 2k

C) 7k

D) 5(2 + k)

41. (Data Literacy) The line graph shows the population of a town over five years.



By how many thousand did the population increase from 2020 to 2024?

A) 18

B) 28

C) 13

D) 15

42. (Data Literacy) Five students recorded their scores on a test: 78, 85, 92, 80, 90. What is the mean score?

A) 85

B) 80

C) 92

D) 78

43. (Spatial Sense) A trapezoid has parallel sides measuring 10 cm and 14 cm, with a height of 6 cm. What is its area?

A) 60 cm^2

B) 72 cm^2

C) 84 cm^2

D) 144 cm^2

44. (Number Sense) A recipe calls for 1 1/2 cups of flour. To make 4 batches of the recipe, how much flour is needed?

A) 4 1/2 cups

B) 5 cups

C) 5 1/2 cups

D) 6 cups

Practice Exam 5: Answer Key and Explanations

1. C — The digit 8 is in the hundred-thousands place in 3,847,521. Reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 8 sits in the sixth position, giving it a value of 8 × 100,000 = 800,000. Place value determines a digit's worth based on its position within the number.

2. D — Starting at 5 and adding 6 repeatedly: term 1 = 5, term 2 = 11, term 3 = 17, term 4 = 23, term 5 = 29, term 6 = 35, term 7 = 41. This arithmetic sequence has a constant difference of +6, creating a linear pattern. Adding the common difference to the previous term generates each subsequent value.

3. A — A cylinder has 2 circular bases (top and bottom) and 1 curved surface connecting them. A cone has only 1 circular base and tapers to a point, while a sphere has no flat surfaces. Recognizing 3D shapes by their face and surface properties supports volume calculations and spatial reasoning.

4. B — Align decimal points and subtract: 18.42 - 9.67 = 8.75. Borrowing is required in both the hundredths place (2 from 12 becomes 12-7=5) and the tenths place (3 from 13 becomes 13-6=7). Proper alignment ensures each place value subtracts from the corresponding position above it.

5. C — Order the data: 25, 25, 30, 30, 30, 40, 45. With 7 values (odd count), the median is the middle value at position 4, which is 30. Median represents the center of ordered data and is unaffected by extreme values, making it useful when outliers are present.

6. A — 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 and reducing to simplest form.

7. D — Multiply hourly rate by hours worked: \$14.50 × 8 = \$116.00. Breaking down: \$14 × 8 = \$112, plus \$0.50 × 8 = \$4.00, totaling \$116.00. Accurate multiplication with decimals is essential for wage calculations and financial planning.

8. B — Solve by adding 17 to both sides: d - 17 = 25 → d = 25 + 17 = 42. Addition is the inverse operation of subtraction, used to isolate the variable. Check: 42 - 17 = 25 ✓. One-step equations build foundational algebra skills.

9. C — A reflex angle measures greater than 180° but less than 360°, representing more than a straight angle but less than a full rotation. Right angles measure exactly 90°, straight angles measure exactly 180°, and obtuse angles measure between 90° and 180°. Understanding angle classifications supports geometric reasoning.

10. A — Calculate 75% of 200: 75% equals 3/4, so (3/4) × 200 = 150. Alternatively, 0.75 × 200 = 150. Recognizing common percent equivalents (75% = 3/4) speeds mental calculation. Percent calculations underpin shopping discounts, taxes, and statistical analysis.

11. B — In the expression 25 - 3h where h represents hours, the coefficient 3 multiplies h, representing the rate at which water leaves the tank per hour. The constant 25 represents the starting amount, while 3h

represents the cumulative amount removed over h hours. Interpreting expression components helps model real-world situations.

12. D — Multiply using the distributive property: $246 \times 7 = (200 + 40 + 6) \times 7 = 1{,}400 + 280 + 42 = 1{,}722$. Breaking large multiplications into manageable parts using place value reduces errors and supports mental computation. Verification: $246 \times 7 = 1{,}722$ ✓.

13. A — Perimeter of a rectangle: P = 2(length + width) = 2(9 + 7) = 2(16) = 32 m. Perimeter measures the total distance around a shape, calculated by adding all four sides or using the formula for rectangles. This calculation supports practical applications like fencing or framing projects.

14. C — Reading the bar graph, soccer reaches 15 students and tennis reaches 5 students. Subtract: 15 - 5 = 10 more students chose soccer than tennis. Comparing bar heights and finding differences is fundamental to interpreting categorical data displays.

15. B — Divide 672 by 8: $672 \div 8 = 84$. Breaking the problem down: $640 \div 8 = 80$, plus $32 \div 8 = 4$, giving $80 + 4 = 84$. Verification: $8 \times 84 = 672$ ✓. Division efficiency improves with familiarity with multiplication facts.

16. D — Substitute y = 3 into the expression $4y^2$: $4(3^2) = 4(9) = 36$. Order of operations requires evaluating the exponent first ($3^2 = 9$), then multiplying by the coefficient. Evaluating expressions with exponents requires careful attention to BEDMAS sequence.

17. C — Calculate the discount: 20% of \$850 = $0.20 \times 850 = \$170$. Subtract from original price: \$850 - \$170 = \$680. Sale price calculations require finding the discount amount and subtracting from the original cost. This essential skill supports informed consumer decisions.

18. A — Convert 4/5 to decimal: $4/5 = 0.8$. We need a value between 0.8 and 1.0. Among the options, only 0.92 falls in this range: 0.74 is less than 0.8, 0.65 is less than 0.8, and 1.05 is greater than 1. Comparing fractions and decimals on a number line helps verify positioning.

19. B — Volume of rectangular prism: V = length × width × height = $7 \times 4 \times 3 = 84$ cm³. 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.

20. D — Reading the frequency data, the 80-89 range has 9 students, the highest frequency among all ranges. Comparing all frequencies: 60-69 has 4, 70-79 has 8, 80-89 has 9, and 90-100 has 4. The range with the most students indicates where the data clusters most heavily.

21. A — The pattern adds 6 each time: $3 \rightarrow 9 \rightarrow 15 \rightarrow 21 \rightarrow 27 \rightarrow 33$. The constant difference between consecutive terms identifies this as an arithmetic sequence with common difference of 6. Adding 6 to 27 gives 33 as the next term.

22. C — Convert meters to centimeters by multiplying by 100: $5.6 \text{ m} \times 100 = 560$ cm. The metric system uses base-10 conversions: 1 meter equals 100 centimeters. Moving from larger to smaller units requires multiplication, producing a larger numerical value for the same physical length.

23. B — Apply translation to point T(-5, 3): 8 units right adds 8 to x-coordinate (-5 + 8 = 3); 2 units down subtracts 2 from y-coordinate (3 - 2 = 1). New coordinates: (3, 1). Translations slide shapes without rotating or reflecting them, preserving size and orientation.

24. D — Find common denominator (12): 2/3 + 1/4 = 8/12 + 3/12 = 11/12. Convert each fraction by multiplying: 2/3 × 4/4 = 8/12 and 1/4 × 3/3 = 3/12. Like denominators are required for adding fractions so numerators represent parts of the same-sized whole.

25. A — Solve the two-step equation: 3x + 8 = 35 → subtract 8 from both sides: 3x = 27 → divide both sides by 3: x = 9. Check: 3(9) + 8 = 27 + 8 = 35 ✓. Two-step equations require systematic application of inverse operations in reverse order of operations.

26. C — Reading the histogram, the bar for the 3-5 books range reaches a height of 12 students. Histograms display frequency distributions for grouped continuous data, with bar height representing the count within each interval. The tallest bar identifies the most common range.

27. D — Convert fraction to percent: 7/10 = 70/100 = 70%. The fraction 7/10 represents 7 parts out of 10, which directly equals 70 parts out of 100 by multiplying both numerator and denominator by 10. Recognizing tenths converts directly to percents.

28. B — Simple interest formula: I = P × r × t = $750 × 0.04 × 2 = $60. Principal ($750) times rate (4% = 0.04) times time (2 years) gives interest earned. Simple interest calculates earnings on the original principal only, supporting basic financial literacy.

29. A — Reflection across the x-axis changes the sign of the y-coordinate while x remains unchanged: (x, y) → (x, -y). Point P at (3, 3) reflects to P'(3, -3). The x-axis acts as a horizontal mirror line, flipping points above to below while maintaining horizontal position.

30. C — "Twice a number" translates to 2n (multiplication first), then "decreased by 11" means subtract 11, producing 2n - 11. The phrase "decreased by" indicates subtraction following the doubled value. Translation order matters: the variable expression comes first, then the subtracted constant.

31. B — Apply order of operations: brackets first: (12 - 8) = 4; then multiplication: 4 × 4 = 16; finally addition: 9 + 16 = 25. BEDMAS dictates this sequence—parentheses first, then multiplication, then addition. Skipping or reordering operations produces incorrect results.

32. D — Range equals maximum minus minimum: maximum = 28, minimum = 15, so range = 28 - 15 = 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. A — A hexagonal prism has 2 hexagonal bases (top and bottom) plus 6 rectangular faces connecting the bases, totaling 8 faces. The formula for prism faces equals 2 (bases) + n (sides matching the base's sides). Understanding 3D properties supports surface area calculations and net construction.

34. C — On a number line, -2 is closer to zero than -5, -8, or -12. With negative numbers, the smaller the absolute value, the closer the number is to zero. Among the options, -2 has the smallest absolute value (2), making it nearest to zero.

35. D — Solve: $5n + 7 = 47$ → subtract 7 from both sides: $5n = 40$ → divide both sides by 5: $n = 8$. Check: $5(8) + 7 = 40 + 7 = 47$ ✓. Two-step equation solving applies inverse operations systematically to isolate the variable.

36. B — Probability equals favorable outcomes divided by total outcomes: P(green) = 8 green / 24 total = 8/24 = 1/3 simplified. Reducing the fraction to lowest terms by dividing both parts by 8 expresses probability in simplest form. Probability quantifies likelihood between 0 and 1.

37. C — Angles around a point sum to 360°. Setting up the equation: $90° + x° + 110° + 75° = 360°$ → $x° = 360° - 275° = 85°$. This property—that all angles meeting at a single point total a full rotation—enables finding unknown angles when others are known.

38. A — Follow order of operations: exponent first: $5^2 = 25$; then multiplication: $3 \times 4 = 12$; finally add and subtract left to right: $25 + 12 - 2 = 35$. BEDMAS dictates this sequence: exponents before multiplication before addition/subtraction. The final operations execute left to right.

39. D — Divide total savings goal by number of months: \$480 ÷ 8 = \$60 per month. This calculation determines the regular savings amount needed to reach a goal within a specified timeframe. Setting and working toward financial goals requires breaking large targets into manageable amounts.

40. B — The fixed flat fee of \$5 is the constant, and \$2 per kilometer multiplied by k kilometers gives 2k for the variable cost. Total cost: \$5 + 2k or 5 + 2k. The constant term represents fixed costs that don't change with usage, while the coefficient times variable represents usage-based costs.

41. C — Reading the line graph: 2020 population = 15 thousand, 2024 population = 28 thousand. Increase = 28 - 15 = 13 thousand. Calculating change over time requires subtracting the earlier value from the later value, producing a measure of growth or decline.

42. A — Calculate mean by summing all values and dividing by count: (78 + 85 + 92 + 80 + 90) ÷ 5 = 425 ÷ 5 = 85. The mean represents the balancing point of the dataset and is the most commonly used measure of central tendency. Mean is influenced by all values, making it sensitive to outliers.

43. B — Area of trapezoid: A = ½ × (sum of parallel sides) × height = ½ × (10 + 14) × 6 = ½ × 24 × 6 = 72 cm². The trapezoid formula averages the two parallel sides and multiplies by height. Height must be perpendicular to the parallel sides, not the slant edges.

44. D — Multiply the recipe amount by the number of batches: 1½ × 4 = 6 cups. Converting to improper fraction: 1½ = 3/2, so (3/2) × 4 = 12/2 = 6 cups. Scaling recipes up requires proportional multiplication of all ingredients to maintain the correct proportions.