

PRACTICE EXAM 2: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

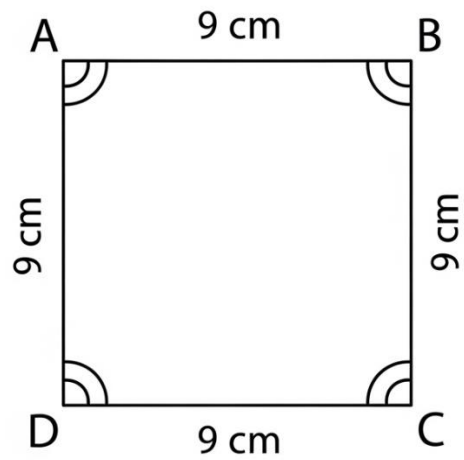
1. (Number Sense) In the number 5,629,418, which digit is in the hundred-thousands place?

- A) 5
- B) 6
- C) 2
- D) 9

2. (Algebra) A pattern follows the rule: "Start at 80 and subtract 7 each time." What is the 5th term in this pattern?

- A) 38
- B) 45
- C) 59
- D) 52

3. (Spatial Sense) The diagram shows a square with side length marked.



Name ABCD

What is the perimeter of square ABCD?

- A) 36 cm
- B) 18 cm
- C) 81 cm
- D) 27 cm

4. (Number Sense) Calculate: $12.8 + 9.65$

- A) 21.45
- B) 22.35
- C) 22.45
- D) 23.45

5. (Data Literacy) A class recorded how many minutes students spent reading: 30, 25, 40, 25, 35, 50, 25. What is the mode?

- A) 30

B) 25

C) 35

D) 40

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

A) $\frac{2}{5}$

B) $\frac{3}{8}$

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

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

7. (Financial Literacy) A movie ticket costs \$11.50. How much will 4 tickets cost?

A) \$46.00

B) \$44.00

C) \$45.00

D) \$47.00

8. (Algebra) Solve for y : $y - 15 = 42$

A) 27

B) 37

C) 57

D) 62

9. (Spatial Sense) Which type of angle measures exactly 90 degrees?

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

10. (Number Sense) What is $\frac{7}{10}$ written as a decimal?

- A) 0.07
- B) 0.17
- C) 0.77
- D) 0.7

11. (Algebra) The algebraic expression $8 + 3n$ represents the total cost of buying n notebooks when each notebook costs \$3 and there is an \$8 delivery fee. What does the 8 represent?

- A) The delivery fee
- B) The cost per notebook
- C) The number of notebooks
- D) The total cost

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 9×67

- A) 593
- B) 613
- C) 603

D) 623

13. (Spatial Sense) A rectangular garden has a length of 15 meters and a width of 8 meters. What is the area?

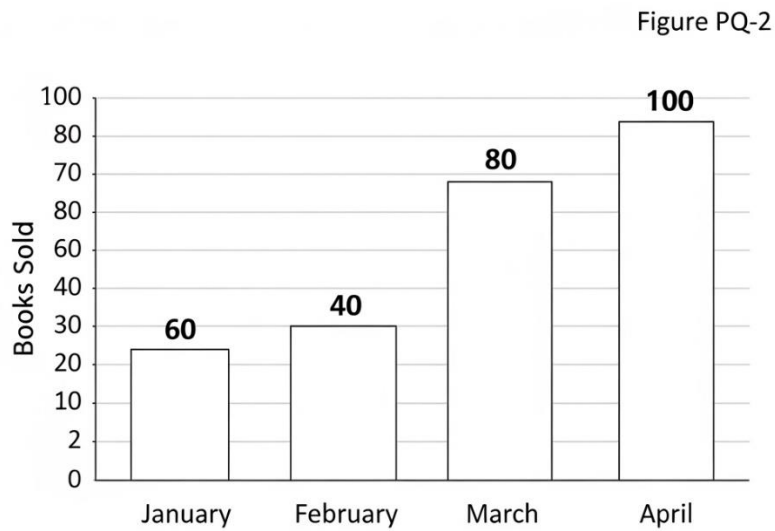
A) 46 m²

B) 120 m²

C) 23 m²

D) 240 m²

14. (Data Literacy) The bar graph shows book sales over four months.



In which month were the most books sold?

A) January

B) February

C) March

D) April

15. (Number Sense) What is 40% of 150?

- A) 60
- B) 40
- C) 75
- D) 50

16. (Algebra) If a pattern follows the rule $7n - 3$, what is the value when $n = 5$?

- A) 28
- B) 35
- C) 32
- D) 38

17. (Financial Literacy) Liam wants to save \$240. He saves \$15 each week. How many weeks will it take him to reach his goal?

- A) 15 weeks
- B) 16 weeks
- C) 14 weeks
- D) 17 weeks

18. (Number Sense) Which of these fractions is equivalent to $10/15$?

- A) $2/3$
- B) $3/5$
- C) $5/6$

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

19. (Spatial Sense) A triangular prism has how many faces?

A) 3

B) 4

C) 6

D) 5

20. (Data Literacy) Five measurements were recorded: 18, 22, 20, 18, 27. What is the mean?

A) 18

B) 20

C) 21

D) 22

21. (Algebra) What is the next number in this pattern: 5, 15, 45, 135, ___?

A) 270

B) 405

C) 540

D) 180

22. (Number Sense) Convert 4,800 milliliters to liters.

A) 4.8 L

B) 48 L

C) 0.48 L

D) 480 L

STAGE 3 (Questions 23-33) — 30 minutes

23. 23. (Spatial Sense) On a coordinate plane, point M is located at (2, 3). If the point is reflected across the x-axis, what are the new coordinates?

A) (-2, 3)

B) (-2, -3)

C) (2, 3)

D) (2, -3)

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

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

B) $\frac{2}{6}$

C) $\frac{1}{2}$

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

25. (Algebra) Solve for x: $2x + 8 = 26$

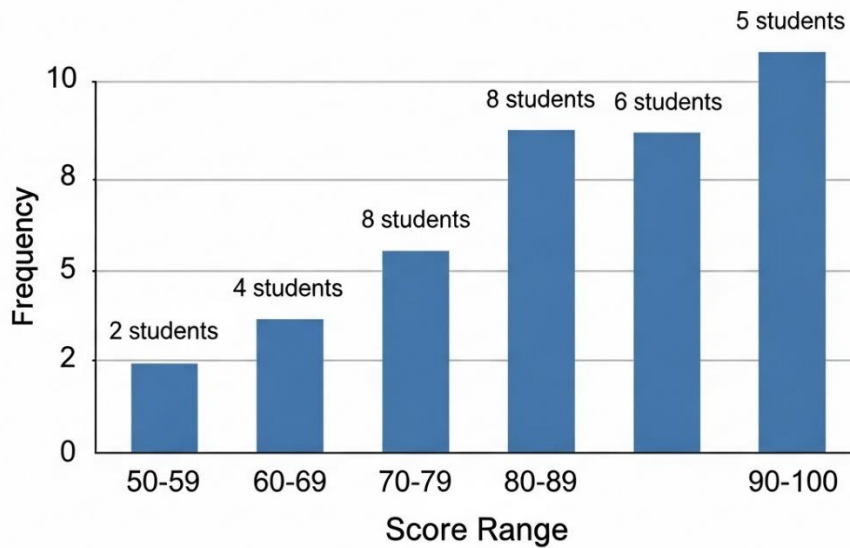
A) 7

B) 9

C) 17

D) 11

26. (Data Literacy) The histogram shows quiz scores for a group of students.



How many students scored in the 70-79 range?

- A) 8
- B) 6
- C) 10
- D) 5

27. (Number Sense) What is $\frac{3}{5}$ as a percent?

- A) 35%
- B) 53%
- C) 50%
- D) 60%

28. (Financial Literacy) A shirt costs \$35 before tax. The tax rate is 10%. What is the total cost including tax?

- A) \$45.00
- B) \$37.50
- C) \$38.50
- D) \$40.00

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

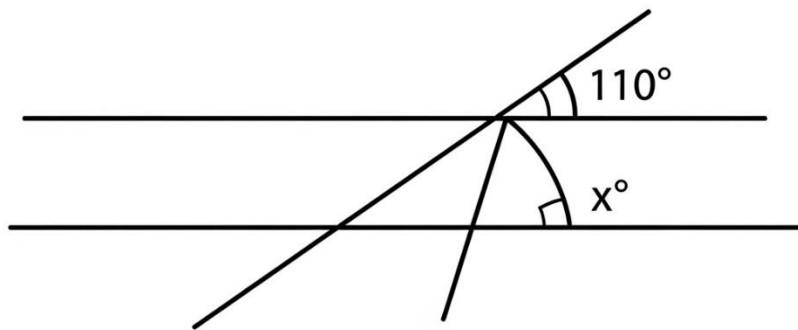


Figure PQ-4

What is the measure of angle x ?

- A) 110°
- B) 70°
- C) 90°
- D) 180°

30. (Algebra) Which expression represents "the product of 6 and a number, decreased by 9"?

- A) $6n - 9$
- B) $6n - 9$

C) $9 - 6n$

D) $6(n - 9)$

Wait, A and B are identical. Let me fix this:

A) $9 - 6n$

B) $6n - 9$

C) $6(n - 9)$

D) $n - 54$

31. (Number Sense) Calculate: $5^3 + 2 \times 6$

A) 162

B) 131

C) 142

D) 137

32. (Data Literacy) Six test scores are: 75, 82, 90, 75, 88, 86. What is the range?

A) 75

B) 82

C) 15

D) 90

33. (Spatial Sense) A rectangular prism has dimensions 8 cm by 5 cm by 4 cm. What is the surface area?

A) 184 cm^2

B) 160 cm^2

C) 120 cm^2

D) 200 cm^2

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Order these integers from least to greatest: -4, 2, -7, 0, 3

A) -7, -4, 2, 0, 3

B) -7, -4, 0, 2, 3

C) 0, 2, 3, -4, -7

D) -4, -7, 0, 2, 3

35. (Algebra) If $3m - 5 = 28$, what is the value of m ?

A) 8

B) 10

C) 9

D) 11

36. (Data Literacy) A bag contains 12 marbles: 5 red, 4 blue, and 3 green. What is the probability of randomly selecting a blue marble?

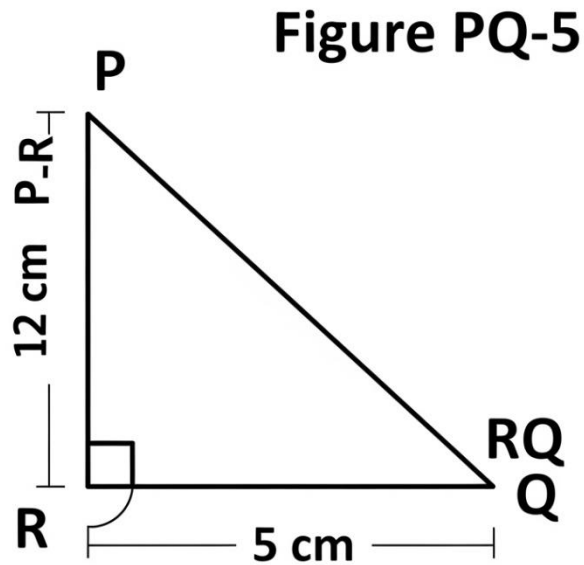
A) $\frac{5}{12}$

B) $\frac{4}{8}$

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

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

37. (Spatial Sense) The figure shows a right triangle with two sides labeled.



What is the length of the hypotenuse PQ?

- A) 13 cm
- B) 17 cm
- C) 15 cm
- D) 11 cm

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

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

39. (Financial Literacy) Sophia deposits \$500 in a savings account with 4% simple interest per year. How much interest will she earn in 2 years?

- A) \$20
- B) \$50
- C) \$8
- D) \$40

40. (Algebra) A rectangular field has a length that is 5 meters more than its width w . Which expression represents the perimeter?

- A) $2w + 5$
- B) $4w + 5$
- C) $4w + 10$
- D) $2w + 10$

41. (Number Sense) Solve: $\frac{5}{9} = \frac{?}{27}$

- A) 15
- B) 20
- C) 18
- D) 12

42. (Data Literacy) A set of data has these values: 14, 18, 22, 18, 26, 30, 18. What is the median?

- A) 22
- B) 18
- C) 20
- D) 26

43. (Spatial Sense) A triangle has a base of 16 cm and a height of 9 cm. What is its area?

- A) 25 cm²
- B) 144 cm²
- C) 50 cm²
- D) 72 cm²

44. (Number Sense) A recipe needs $\frac{2}{3}$ cup of sugar. To make half of the recipe, how much sugar is needed?

- A) $\frac{1}{6}$ cup
- B) $\frac{1}{4}$ cup
- C) $\frac{1}{3}$ cup
- D) $\frac{2}{6}$ cup

PRACTICE EXAM 2: ANSWER KEY AND EXPLANATIONS

1. B — The hundred-thousands place is the sixth position from the right in a whole number. In 5,629,418, reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 6 occupies the hundred-thousands place. Place value understanding is fundamental for reading, comparing, and operating with large numbers.

2. D — 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 decreases by a constant difference of -7, creating a linear pattern. Recognizing constant differences helps identify arithmetic patterns and predict future terms.

3. A — A square has four equal sides. Perimeter equals the sum of all sides: $9 + 9 + 9 + 9 = 36$ cm, or using the formula $P = 4s = 4(9) = 36$ cm. Perimeter measures the total distance around a shape, essential for fencing, framing, and border calculations.

4. C — Align decimal points and add: 12.8 becomes 12.80 for alignment, then $12.80 + 9.65 = 22.45$. Proper decimal alignment ensures each place value adds to the corresponding position. This skill is critical for financial calculations, measurements, and scientific computations.

5. B — The mode is the value appearing most frequently. In the dataset {30, 25, 40, 25, 35, 50, 25}, the number 25 appears three times while all others appear once, making 25 the mode. Mode identifies the most common occurrence, useful for understanding typical values in data.
6. D — Converting to compare: $1/2 = 4/8$. The fraction $5/8$ has a larger numerator than $4/8$ with the same denominator, making $5/8 > 1/2$. Alternatively, $5/8 = 0.625$ and $1/2 = 0.5$, confirming $5/8$ is greater. Comparing fractions to benchmark values like $1/2$ aids estimation and ordering.
7. A — Multiply the cost per ticket by the number of tickets: $\$11.50 \times 4 = \46.00 . Breaking down: $\$11 \times 4 = \44 , plus $\$0.50 \times 4 = \2.00 , totaling $\$46.00$. Multiplication with money requires careful decimal placement to ensure accurate financial calculations.
8. C — Solve by adding 15 to both sides: $y - 15 = 42 \rightarrow y = 42 + 15 = 57$. Addition is the inverse operation of subtraction, used to isolate the variable. Check: $57 - 15 = 42 \checkmark$. One-step equations build foundational skills for more complex algebraic problem-solving.
9. B — A right angle measures exactly 90 degrees and forms a perfect corner, marked by a small square symbol in diagrams. Right angles are fundamental in geometry, appearing in rectangles, squares, and perpendicular lines. Understanding angle types is essential for geometric reasoning and construction.
10. D — Convert by dividing numerator by denominator: $7 \div 10 = 0.7$. The fraction $7/10$ literally means 7 tenths, which equals 0.7 in decimal form. This conversion skill enables comparison between fractions and decimals and supports work with measurements and money.
11. A — In the expression $8 + 3n$, the constant term 8 represents a fixed cost that doesn't change with the number of notebooks purchased—the delivery fee. The variable term $3n$ represents the cost that varies with quantity (number of notebooks). Understanding components of expressions helps interpret real-world algebraic models.
12. C — Multiply using the standard algorithm or distributive property: $9 \times 67 = 9(60 + 7) = 540 + 63 = 603$. Alternatively, 9×67 can be calculated as $9 \times 70 = 630$, minus $9 \times 3 = 27$, giving $630 - 27 = 603$. Multiplication strategies enable efficient mental math and accurate computation.
13. B — Area of a rectangle equals length times width: $A = 15 \times 8 = 120 \text{ m}^2$. Area measures the two-dimensional space inside a shape, expressed in square units. This calculation is fundamental for determining flooring needs, paint coverage, or garden sizing.
14. D — Reading the bar graph, April's bar reaches 100 books sold, which is higher than January (60), February (80), and March (40). Bar graphs enable quick visual comparison of quantities across categories. Identifying maximum values requires comparing all bar heights systematically.
15. A — Calculate 40% of 150: convert percent to decimal ($40\% = 0.40$) and multiply: $0.40 \times 150 = 60$. Alternatively, find 10% (15) and multiply by 4: $15 \times 4 = 60$. Percent calculations are essential for understanding discounts, taxes, tips, and statistical data.

16. C — Substitute $n = 5$ into the expression $7n - 3$: $7(5) - 3 = 35 - 3 = 32$. Evaluating algebraic expressions involves replacing variables with given values and computing using order of operations. This skill connects symbolic algebra to numerical results.
17. B — Divide total savings goal by weekly savings amount: $\$240 \div \$15 = 16$ weeks. This calculation determines the time required to reach a financial goal through regular savings. Planning skills like this support budgeting, goal-setting, and financial literacy.
18. A — Simplify $10/15$ by dividing both numerator and denominator by their greatest common factor (5): $10/15 = (10 \div 5)/(15 \div 5) = 2/3$. Equivalent fractions represent the same value despite different appearance, essential for comparing, adding, and subtracting fractions.
19. D — A triangular prism has 2 triangular bases (top and bottom) and 3 rectangular faces (sides), totaling 5 faces. Understanding 3D object properties helps with surface area calculations, volume computations, and spatial reasoning. Faces are the flat surfaces that bound a solid.
20. C — Calculate mean by summing all values and dividing by count: $(18 + 22 + 20 + 18 + 27) \div 5 = 105 \div 5 = 21$. The mean (average) represents a central value that balances all data points equally. Mean is the most commonly used measure of central tendency in statistical analysis.
21. B — The pattern multiplies by 3 each time: $5 \times 3 = 15$, $15 \times 3 = 45$, $45 \times 3 = 135$, $135 \times 3 = 405$. Geometric sequences grow exponentially through constant multiplication. Identifying the common ratio enables prediction of any term in the sequence.
22. A — Convert milliliters to liters by dividing by 1,000: $4,800 \text{ mL} \div 1,000 = 4.8 \text{ L}$. The metric system's base-10 structure makes conversions straightforward—moving from smaller to larger units requires division. Understanding metric conversions supports measurement, cooking, and scientific work.
23. D — Reflection across the x-axis changes the sign of the y-coordinate while x remains unchanged: $(x, y) \rightarrow (x, -y)$. Point M at $(2, 3)$ reflects to $(2, -3)$. The x-axis acts as a horizontal mirror line, with points flipping above/below while maintaining the same horizontal position.
24. C — Find common denominator (6): $5/6 - 1/3 = 5/6 - 2/6 = 3/6 = 1/2$. Convert $1/3$ to sixths by multiplying numerator and denominator by 2. Subtracting fractions requires like denominators so numerators represent parts of the same-sized whole.
25. B — Solve the two-step equation: $2x + 8 = 26 \rightarrow$ subtract 8 from both sides: $2x = 18 \rightarrow$ divide both sides by 2: $x = 9$. Check: $2(9) + 8 = 18 + 8 = 26 \checkmark$. Two-step equations require systematic application of inverse operations in reverse order of operations.
26. A — Reading the histogram, the bar for the 70-79 score range has a height of 8 students. Histograms group continuous data into intervals (bins), with bar height representing frequency within each range. Unlike bar graphs, histogram bars touch because data is continuous.

27. D — Convert fraction to percent: $\frac{3}{5} = 0.6 = 60\%$. Divide 3 by 5 to get decimal (0.6), then multiply by 100 to get percent. Alternatively, recognize $\frac{3}{5} = \frac{6}{10} = \frac{60}{100} = 60\%$. Converting between fractions, decimals, and percents enables flexible problem-solving across contexts.

28. C — Calculate 10% tax: 10% of \$35 = \$3.50. Add tax to original price: $\$35.00 + \$3.50 = \$38.50$. Sales tax calculations require finding the percent of the base price and adding it to determine total cost. This skill is essential for budgeting and consumer awareness.

29. A — When parallel lines are cut by a transversal, corresponding angles are equal. The angle marked 110° and angle x occupy corresponding positions (both upper-right at their intersection points), making $x = 110^\circ$. Understanding angle relationships with parallel lines supports geometric reasoning and construction.

30. B — "Product of 6 and a number" translates to $6n$ (multiplication). "Decreased by 9" means subtract 9, producing $6n - 9$. Translating verbal phrases to algebraic expressions requires identifying operation keywords and maintaining correct order, especially with subtraction and division.

31. D — Follow order of operations (BEDMAS): evaluate exponent first: $5^3 = 125$; then multiply: $2 \times 6 = 12$; finally add: $125 + 12 = 137$. Order of operations ensures consistent evaluation—exponents before multiplication before addition. Skipping steps or changing order produces incorrect results.

32. C — Range equals maximum value minus minimum value. Ordering the scores: 75, 75, 82, 86, 88, 90. Range = $90 - 75 = 15$. Range measures variability or spread in data, indicating how far apart the extreme values are.

33. A — Surface area of rectangular prism: $SA = 2(\text{length} \times \text{width}) + 2(\text{length} \times \text{height}) + 2(\text{width} \times \text{height}) = 2(8 \times 5) + 2(8 \times 4) + 2(5 \times 4) = 2(40) + 2(32) + 2(20) = 80 + 64 + 40 = 184 \text{ cm}^2$. Surface area totals all six rectangular faces, essential for determining paint needs or wrapping requirements.

34. B — On a number line, integers increase from left to right. Negative numbers are less than zero, with more negative values being smaller: $-7 < -4 < 0 < 2 < 3$. Understanding integer ordering is fundamental for working with temperatures, elevations, debts, and credits.

35. D — Solve: $3m - 5 = 28 \rightarrow$ add 5 to both sides: $3m = 33 \rightarrow$ divide both sides by 3: $m = 11$. Check: $3(11) - 5 = 33 - 5 = 28 \checkmark$. Two-step equation solving applies inverse operations systematically to isolate variables.

36. C — Probability equals favorable outcomes divided by total outcomes: $P(\text{blue}) = \frac{4 \text{ blue marbles}}{12 \text{ total marbles}} = \frac{4}{12} = \frac{1}{3}$. Simplifying the fraction shows that one-third of the marbles are blue. Probability quantifies likelihood, with values between 0 (impossible) and 1 (certain).

37. A — Use the Pythagorean theorem for right triangles: $a^2 + b^2 = c^2$, where c is the hypotenuse: $12^2 + 5^2 = c^2 \rightarrow 144 + 25 = c^2 \rightarrow 169 = c^2 \rightarrow c = 13 \text{ cm}$. The Pythagorean theorem relates the three sides of any right triangle, enabling calculation of unknown sides.

38. B — Follow order of operations: brackets first: $(8 + 4) = 12$; then division and multiplication left to right: $12 \div 3 = 4$; then $4 \times 2 = 8$. Division and multiplication have equal priority and are performed from left to right. Parentheses override normal operation order.

39. D — Simple interest formula: $I = P \times r \times t = \$500 \times 0.04 \times 2 = \40 . Principal (\$500) times rate (4% = 0.04) times time (2 years) gives interest earned. Simple interest calculates earnings on the original principal only, making it straightforward for introductory financial problems.

40. C — If width = w , then length = $w + 5$. Perimeter = $2(\text{length}) + 2(\text{width}) = 2(w + 5) + 2(w) = 2w + 10 + 2w = 4w + 10$. Perimeter formulas can express dimensions algebraically when one dimension is defined in terms of another. This models real-world relationships between measurements.

41. A — The denominator changes from 9 to 27, multiplying by 3 ($9 \times 3 = 27$). Apply the same factor to the numerator: $5 \times 3 = 15$. Therefore $5/9 = 15/27$. Creating equivalent fractions requires multiplying or dividing both parts by the same value, preserving the ratio.

42. B — Order the values: 14, 18, 18, 18, 22, 26, 30. With 7 values (odd count), the median is the middle value at position 4: 18. Three values fall below and three above this middle point. Median represents the center of ordered data, unaffected by extreme values.

43. D — Area of triangle: $A = 1/2 \times \text{base} \times \text{height} = 1/2 \times 16 \times 9 = 1/2 \times 144 = 72 \text{ cm}^2$. The height must be perpendicular to the base. Triangle area equals half the area of a rectangle with the same base and height.

44. C — Half of $2/3$ means multiply by $1/2$: $(2/3) \times (1/2) = (2 \times 1)/(3 \times 2) = 2/6 = 1/3$ cup when simplified. Scaling recipes up or down requires multiplying all ingredients by the same factor. Multiplying fractions involves multiplying numerators together and denominators together.