PRACTICE EXAM 9: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) In the number 4,829,153, which digit is in the hundred-thousands place?

A) 4

B) 9

C) 8

D) 2

2. (Algebra) A pattern starts at 3 and follows the rule "multiply by 4 each time." What is the third term?

A) 48

B) 36

C) 24

D) 12

3. (Spatial Sense) A solid figure has 6 square faces of equal size. What is the name of this shape?

A) Rectangular prism

B) Cube

C) Square pyramid

D) Hexagonal prism

4. (Number Sense) Calculate: 5.92 + 11.4

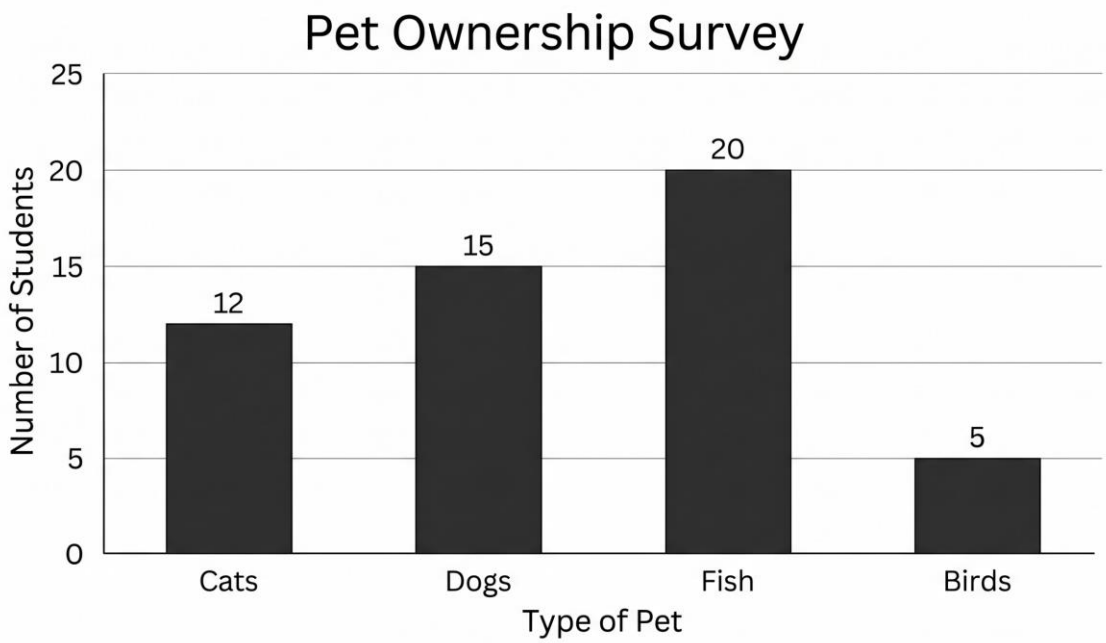
A) 16.32

B) 16.96

C) 17.36

D) 17.32

5. (Data Literacy) The bar graph shows the number of pets owned by students in a class survey.



Which type of pet is owned by the most students?

A) Cats

B) Dogs

C) Fish

D) Birds

6. (Number Sense) Which fraction is greater than 2/3?

A) 5/6

B) 1/2

C) 5/8

D) 3/5

7. (Financial Literacy) A skateboard costs $90 before tax. There is a 15% sales tax. What is the total cost including tax?

A) $13.50

B) $76.50

C) $105.00

D) $103.50

8. (Algebra) Solve for k: 3k = 51

A) 16

B) 17

C) 18

D) 153

9. (Spatial Sense) How many degrees are in a straight angle?

A) 90°

B) 270°

C) 180°

D) 360°

10. (Number Sense) Convert 7.4 kilograms to grams.

A) 74 g

B) 740 g

C) 0.74 g

D) 7,400 g

11. (Algebra) Which expression represents "seven more than the product of 5 and a number n"?

A) 5n + 7

B) 7 - 5n

C) 5(n + 7)

D) $7n + 5$

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 9×73

A) 627

B) 657

C) 647

D) 667

13. (Spatial Sense) A triangle has sides measuring 7 cm, 7 cm, and 9 cm. What type of triangle is it?

A) Equilateral

B) Scalene

C) Isosceles

D) Right

14. (Data Literacy) Six students recorded their math test scores: 82, 76, 90, 82, 78, 88. What is the range?

A) 8

B) 6

C) 12

D) 14

15. (Number Sense) Calculate: $408 \div 6$

A) 68

B) 64

C) 72

D) 76

16. (Algebra) Evaluate the expression 7m - 9 when m = 8.

A) 56

B) 49

C) 47

D) 63

17. (Financial Literacy) Mia earns $11.50 per hour. How much does she earn for working 6 hours?

A) $66.50

B) $69.00

C) $70.00

D) $63.00

18. (Number Sense) What is 5/8 written as a decimal?

A) 0.58

B) 0.85

C) 0.5

D) 0.625

19. (Spatial Sense) A square has a perimeter of 36 cm. What is its area?

A) 81 cm^2

B) 72 cm^2

C) 144 cm^2

D) 96 cm^2

20. (Data Literacy) A spinner has 8 equal sections: 3 red, 2 blue, 2 yellow, and 1 green. What is the probability of NOT spinning blue?

A) 2/8

B) 4/8

C) 6/8

D) 1/8

21. (Algebra) What is the next term in the sequence: 4, 12, 36, 108, ___?

A) 216

B) 324

C) 270

D) 432

22. (Number Sense) What is 18/24 in simplest form?

A) 6/8

B) 9/12

C) 2/3

D) 3/4

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) A triangle has two angles measuring 55° and 75°. What is the measure of the third angle?

A) 50°

B) 60°

C) 45°

D) 40°

24. (Number Sense) Calculate: 1/3 + 2/5

A) 3/8

B) 11/15

C) 7/15

D) 2/8

25. (Algebra) Solve for y: 5y - 12 = 23

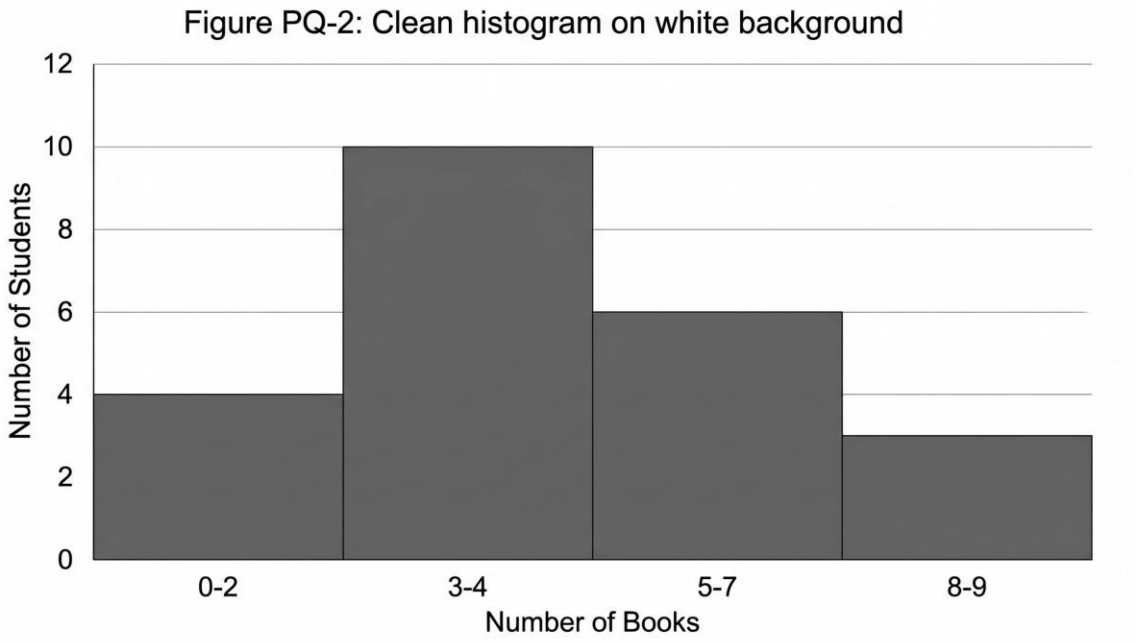
A) 5

B) 6

C) 7

D) 8

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



How many students read between 5-7 books?

A) 4

B) 8

C) 12

D) 6

27. (Number Sense) Which integer is greater than -5 but less than 0?

A) -6

B) -3

C) 5

D) -8

28. (Financial Literacy) Yusuf wants to save $360 for a new bike. He saves $24 per week. How many weeks will it take him to reach his goal?

A) 15 weeks

B) 12 weeks

C) 18 weeks

D) 20 weeks

29. (Spatial Sense) Point B is at coordinates (4, 5). When B is reflected across the x-axis, what are the new coordinates?

A) (-4, 5)

B) (-4, -5)

C) (4, -5)

D) (5, 4)

30. (Algebra) A movie theater charges $9 per adult ticket and $6 per child ticket. Which expression represents the total cost for a adults and c children?

A) 9 + 6 + ac

B) 9a - 6c

C) 9(a + c)

D) 9a + 6c

31. (Number Sense) Calculate: 12 + 3 × (8 - 5)

A) 27

B) 21

C) 33

D) 45

32. (Data Literacy) Five test scores were recorded: 75, 80, 95, 85, 90. What is the mean?

A) 85

B) 80

C) 95

D) 75

33. (Spatial Sense) How many edges does a cube have?

A) 6

B) 8

C) 12

D) 16

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Calculate: $7^2 - 4 \times 3$

A) 21

B) 25

C) 33

D) 37

35. (Algebra) If $8x + 6 = 38$, what is the value of x?

A) 4

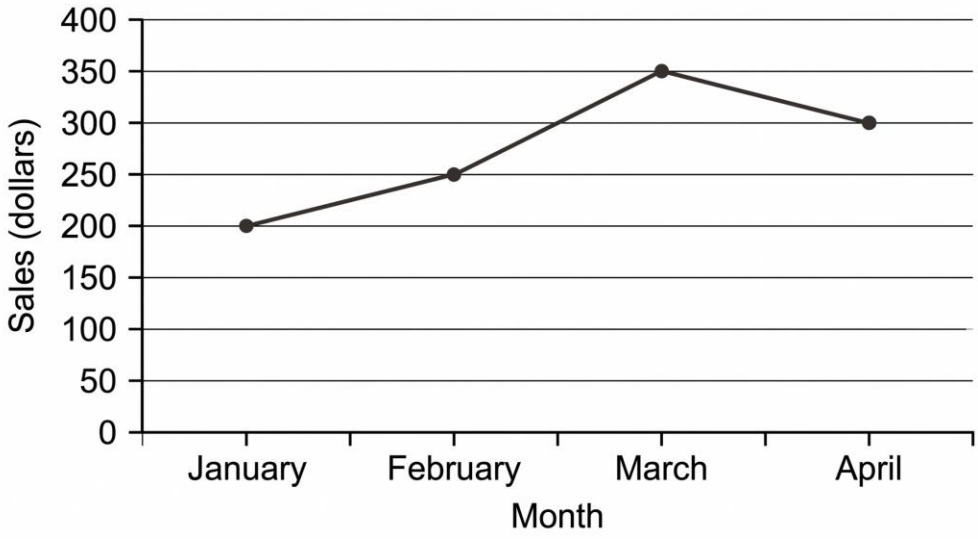
B) 5

C) 6

D) 7

36. (Data Literacy) The line graph shows monthly sales at a small store.

[Figure PQ-3]



In which month were sales the highest?

A) January

B) February

C) March

D) April

37. (Spatial Sense) A rectangular prism has dimensions 6 cm × 4 cm × 5 cm. What is its volume?

A) 90 cm^3

B) 120 cm^3

C) 60 cm^3

D) 150 cm^3

38. (Number Sense) Which number is the smallest?

A) 0.087

B) 0.708

C) 0.78

D) 0.87

39. (Financial Literacy) Ava deposits $250 in a savings account at 4% simple interest per year. How much interest will she earn after 3 years?

A) $10

B) $20

C) $25

D) $30

40. (Algebra) Which expression represents "half of a number n, decreased by 4"?

A) 4 - n/2

B) (n - 4)/2

C) n/2 - 4

D) 2n - 4

41. (Number Sense) Which number makes this statement true? 4/9 = ?/45

A) 18

B) 20

C) 22

D) 25

42. (Data Literacy) Find the median of this data set: 18, 24, 15, 30, 22.

A) 22

B) 24

C) 18

D) 21

43. (Spatial Sense) The figure shows two intersecting lines forming four angles.

[Figure PQ-4: Clean black-line diagram on white background. Two straight lines intersecting at center point O creating four angles. The angle in the upper-right position is labeled "70°" with an arc marking. The angle directly opposite (lower-left position) is labeled "x°" with an arc marking. The upper-left and lower-right angles are unlabeled but visible with arc markings.]

What is the value of x?

A) 110°

B) 90°

C) 35°

D) 70°

44. (Data Literacy) A bag contains 30 marbles: 12 red, 8 blue, 6 green, and 4 yellow. What is the probability of drawing a blue marble, expressed in simplest form?

A) 1/5

B) 4/15

C) 2/5

D) 1/4

Practice Exam 9: Answer Key and Explanations

1. C — The digit 8 occupies the hundred-thousands place in 4,829,153. Counting from the right (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit in the sixth position is 8, with a place value of 800,000. Place value identification is fundamental for reading, writing, and comparing large numbers.

2. A — Starting at 3 and multiplying by 4 produces: term 1 = 3, term 2 = 12, term 3 = 48. This geometric sequence has a common ratio of 4, where each term is four times the previous one. Recognizing multiplicative patterns distinguishes geometric sequences from arithmetic ones.

3. B — A cube has 6 congruent square faces, with all edges equal in length. A rectangular prism has rectangular faces of varying sizes, a square pyramid has 1 square base plus 4 triangular faces, and a hexagonal prism has hexagonal bases. The cube is unique in having all six faces identical squares.

4. D — Align decimal points and add: 5.92 + 11.40 = 17.32. Writing 11.4 as 11.40 ensures matching decimal places. Proper alignment of place values is essential for decimal operations in money, measurement, and scientific calculations.

5. C — Reading the bar graph, fish has the tallest bar at 20 students, exceeding cats (12), dogs (15), and birds (5). Comparing bar heights enables quick identification of maximum values in categorical data. Bar graphs efficiently display comparisons across discrete categories.

6. A — Compare each fraction to 2/3 (which equals about 0.667). 5/6 ≈ 0.833 is greater; 1/2 = 0.5 is less; 5/8 = 0.625 is less; 3/5 = 0.6 is less. Only 5/6 exceeds 2/3. Converting fractions to decimals supports straightforward comparison.

7. D — Calculate 15% of $90: 0.15 × 90 = $13.50 tax. Add to original price: $90.00 + $13.50 = $103.50. Sales tax calculations require finding the percent of the base price and adding it to determine the total purchase cost. This skill supports budgeting and consumer decisions.

8. B — Solve by dividing both sides by 3: 3k = 51 → k = 51 ÷ 3 = 17. Division is the inverse operation of multiplication, used to isolate the variable. Check: 3 × 17 = 51 ✓. One-step equations form the foundation for solving more complex algebraic problems.

9. C — A straight angle measures exactly 180° and forms a straight line, with its two rays extending in opposite directions from the vertex. Right angles measure 90°, full rotations measure 360°, and reflex angles measure between 180° and 360°. Recognizing angle measures supports geometric reasoning.

10. D — Convert kilograms to grams by multiplying by 1,000: 7.4 kg × 1,000 = 7,400 g. The metric system uses base-10 conversions, with 1 kg equal to 1,000 g. Moving from larger to smaller units requires multiplication, producing a larger numerical value for the same mass.

11. A — "The product of 5 and n" translates to 5n (multiplication first), and "seven more than" means add 7, producing 5n + 7. The phrase "more than" indicates addition, with the result added to the previous expression. Algebraic translation requires careful attention to operation order and keywords.

12. B — Multiply using the distributive property: 9 × 73 = 9 × (70 + 3) = 630 + 27 = 657. Breaking large multiplications into manageable parts using place value reduces calculation errors. Verification: 657 ÷ 9 = 73 ✓.

13. C — An isosceles triangle has exactly two equal sides. With sides of 7 cm, 7 cm, and 9 cm, two sides match while the third differs, satisfying the isosceles definition. Equilateral triangles have all three sides equal, scalene triangles have no equal sides, and right triangles contain a 90° angle.

14. D — Range equals maximum minus minimum: maximum = 90, minimum = 76, so range = 90 - 76 = 14. 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.

15. A — Divide 408 by 6: breaking this down, 360 ÷ 6 = 60, plus 48 ÷ 6 = 8, giving 60 + 8 = 68. Verification: 6 × 68 = 408 ✓. Division efficiency improves with familiarity with multiplication facts and partial quotient strategies.

16. C — Substitute m = 8 into the expression 7m - 9: 7(8) - 9 = 56 - 9 = 47. Order of operations requires performing multiplication before subtraction per BEDMAS. Evaluating algebraic expressions connects symbolic algebra to numerical results.

17. B — Multiply hourly rate by hours worked: $11.50 × 6 = $69.00. Breaking down: $11 × 6 = $66, plus $0.50 × 6 = $3.00, totaling $69.00. Accurate multiplication with decimals is essential for calculating wages and other financial computations.

18. D — Convert 5/8 to a decimal by dividing the numerator by the denominator: 5 ÷ 8 = 0.625. The fraction 5/8 represents 5 parts out of 8 equal parts, equivalent to 0.625 in decimal form. Memorizing common fraction-decimal equivalents speeds calculations.

19. A — A square has four equal sides. If perimeter is 36 cm, one side equals 36 ÷ 4 = 9 cm. Area equals side squared: $A = 9^2 = 81$ cm². Connecting perimeter to area requires two steps: first finding side length, then squaring it. Both measurements describe different properties of the same shape.

20. C — The probability of not blue equals the total non-blue sections divided by total: (8 - 2)/8 = 6/8 = 3/4 simplified. Complementary probabilities (blue vs. not blue) sum to 1: 2/8 + 6/8 = 8/8 = 1. This complement approach simplifies many probability calculations.

21. B — The pattern multiplies by 3 each time: 4 × 3 = 12, 12 × 3 = 36, 36 × 3 = 108, 108 × 3 = 324. 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 18/24 by dividing both numerator and denominator by their greatest common factor (6): 18/24 = (18÷6)/(24÷6) = 3/4. Reducing fractions to simplest form supports easier comparison and operations. Equivalent fractions represent the same value despite different appearance.

23. A — The interior angles of any triangle sum to 180°. The third angle equals 180° - 55° - 75° = 50°. This angle sum property holds for all triangles regardless of type, making it a powerful tool for finding missing angles in geometric problems.

24. B — Find common denominator (15): 1/3 = 5/15 and 2/5 = 6/15. Add: 5/15 + 6/15 = 11/15. Like denominators are required for adding fractions so that numerators represent parts of the same-sized whole. The fraction 11/15 is already in simplest form.

25. C — Solve the two-step equation: 5y - 12 = 23 → add 12 to both sides: 5y = 35 → divide both sides by 5: y = 7. Check: 5(7) - 12 = 35 - 12 = 23 ✓. Two-step equations require systematic application of inverse operations in reverse order of operations.

26. D — Reading the histogram, the bar for the 5-7 books interval reaches a height of 6 students. Histograms display frequency distributions for grouped data, with bar height representing the count within each interval. Identifying values requires careful reading of both axes.

27. B — Integers greater than -5 but less than 0 include -4, -3, -2, and -1. Among the options, only -3 satisfies both conditions: -3 > -5 (closer to zero) and -3 < 0 (still negative). Understanding integer comparison and ordering supports work with temperature, elevation, and financial contexts.

28. A — Divide the savings goal by the weekly amount: \$360 ÷ \$24 = 15 weeks. This calculation determines how long regular savings will take to reach a target. Setting and working toward financial goals requires breaking large targets into manageable amounts.

29. C — Reflection across the x-axis changes the sign of the y-coordinate while x remains unchanged: (x, y) → (x, -y). Point B at (4, 5) reflects to B'(4, -5). The x-axis acts as a horizontal mirror line, flipping points above to below while maintaining horizontal position.

30. D — Multiply price per ticket by number of tickets for each category, then add: \$9 × a adults gives 9a, and \$6 × c children gives 6c. Total cost: 9a + 6c. Expressions modeling real-world pricing combine rates with quantities, demonstrating how variables represent changeable quantities.

31. B — Apply order of operations: brackets first: (8 - 5) = 3; then multiplication: 3 × 3 = 9; finally addition: 12 + 9 = 21. BEDMAS dictates this sequence—parentheses before multiplication before addition. Skipping or reordering operations produces incorrect results.

32. A — Calculate mean by summing values and dividing by count: (75 + 80 + 95 + 85 + 90) ÷ 5 = 425 ÷ 5 = 85. 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 — A cube has 12 edges: 4 edges on the top face, 4 edges on the bottom face, and 4 vertical edges connecting top and bottom. Each edge is shared between exactly two faces. Understanding edge counts supports surface area calculations and net construction for 3D shapes.

34. D — Follow order of operations: exponent first: $7^2 = 49$; then multiplication: 4 × 3 = 12; finally subtraction: 49 - 12 = 37. BEDMAS dictates this sequence: exponents before multiplication before subtraction. Each operation must be performed in correct order.

35. A — Solve: 8x + 6 = 38 → subtract 6 from both sides: 8x = 32 → divide both sides by 8: x = 4. Check: 8(4) + 6 = 32 + 6 = 38 ✓. Two-step equation solving applies inverse operations systematically to isolate the variable.

36. C — Reading the line graph, March reaches \$350 in sales, higher than January (\$200), February (\$250), or April (\$300). Identifying peak values on line graphs requires comparing all plotted points. Line graphs effectively show changes over continuous time periods.

37. B — Volume of rectangular prism: V = length × width × height = 6 × 4 × 5 = 120 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.

38. A — Compare decimal values by examining each place: 0.087 has 0 tenths, while 0.708, 0.78, and 0.87 all have 7 or more tenths. With the smallest tenths value, 0.087 is the smallest overall. Decimal comparison requires examining place values from left to right, starting with tenths.

39. D — Use the simple interest formula: I = P × r × t = $250 × 0.04 × 3 = $30. Principal ($250) times rate (4% = 0.04) times time (3 years) gives interest earned. Simple interest calculates earnings only on the original principal, foundational for understanding savings growth.

40. C — "Half of n" translates to n/2 (division first), and "decreased by 4" means subtract 4, producing n/2 - 4. The phrase order matches the operation sequence: first divide n by 2, then subtract 4 from the result. Translation requires careful attention to operation keywords.

41. B — The denominator changes from 9 to 45, which is multiplying by 5 (9 × 5 = 45). Apply the same factor to the numerator: 4 × 5 = 20. Therefore, 4/9 = 20/45. Equivalent fractions are created by multiplying both parts by the same value, preserving the ratio.

42. A — Order the values: 15, 18, 22, 24, 30. With 5 values (odd count), the median is the middle value at position 3, which is 22. Median represents the center of ordered data and is unaffected by extreme values, making it useful when outliers are present.

43. D — Vertically opposite angles formed by two intersecting lines are always equal in measure. The angle marked 70° and angle x sit directly across from each other through the intersection point, making x = 70°. This property holds regardless of the specific angle measures involved.

44. B — Probability equals favorable outcomes divided by total outcomes: P(blue) = 8/30. Simplify by dividing both by 2: 8/30 = 4/15. The simplified form expresses the probability in lowest terms. Probability values range from 0 (impossible) to 1 (certain).