PRACTICE EXAM 15: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) In the number 8,206,471, what is the digit in the hundred-thousands place?

A) 8

B) 2

C) 0

D) 6

2. (Algebra) A pattern starts at 96 and follows the rule "divide by 2 each time." What is the 4th term?

A) 24

B) 6

C) 12

D) 16

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

A) 6

B) 12

C) 18

D) 8

4. (Number Sense) Calculate: 36.4 + 19.78

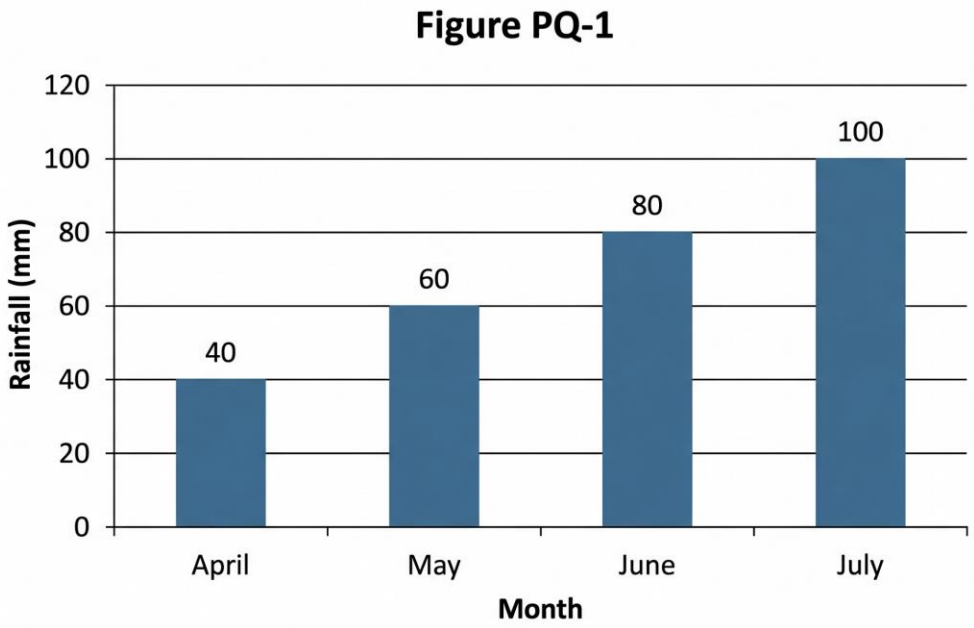
A) 56.18

B) 56.42

C) 55.18

D) 56.08

5. (Data Literacy) The bar graph shows the average rainfall in millimeters for four months.



Which month had exactly 60 mm of rainfall?

A) April

B) May

C) June

D) July

6. (Number Sense) Which decimal is greater than 0.45?

A) 0.4

B) 0.405

C) 0.45

D) 0.5

7. (Financial Literacy) A T-shirt costs $24 before tax. With 13% sales tax, what is the tax amount?

A) $2.40

B) $4.00

C) $3.12

D) $3.50

8. (Algebra) Solve for h: h + 24 = 51

A) 27

B) 75

C) 24

D) 17

9. (Spatial Sense) What type of triangle has three equal sides?

A) Right

B) Isosceles

C) Equilateral

D) Scalene

10. (Number Sense) Convert 6.3 kg to grams.

A) 63 g

B) 6,300 g

C) 630 g

D) 0.0063 g

11. (Algebra) Which expression represents "the sum of twice a number n and 9"?

A) 2n + 9

B) 2(n + 9)

C) 9n + 2

D) 9 - 2n

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 6 × 87

A) 482

B) 502

C) 542

D) 522

13. (Spatial Sense) A circle has a diameter of 14 cm. What is the radius?

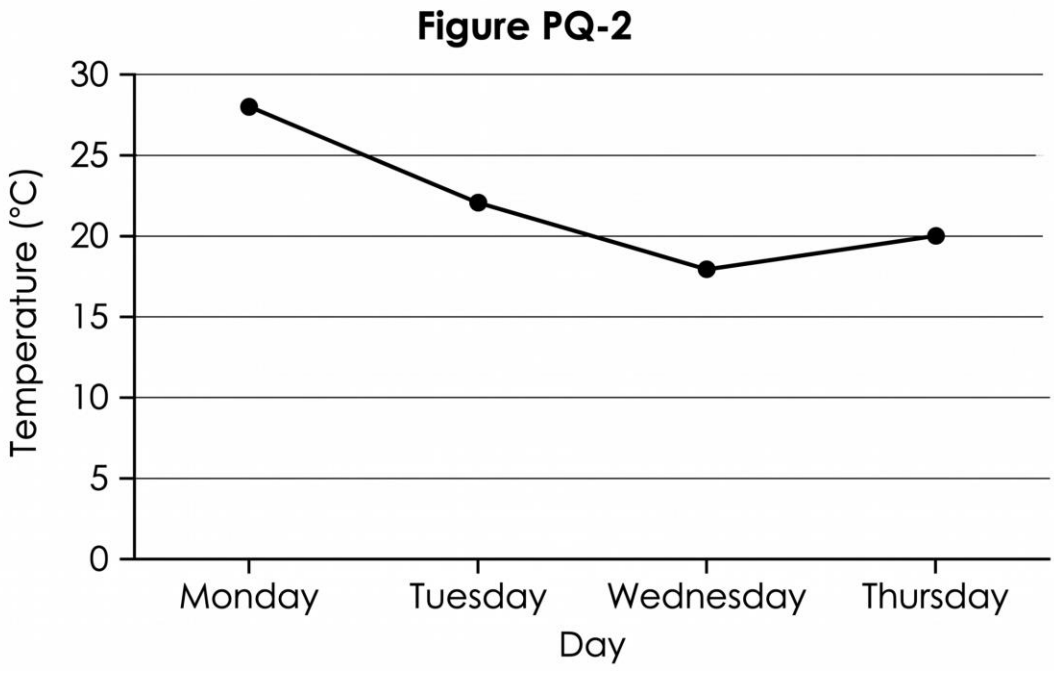
A) 28 cm

B) 49 cm

C) 7 cm

D) 14 cm

14. (Data Literacy) The line graph shows the daily high temperatures over four days.



Which day had the highest temperature?

A) Monday

B) Tuesday

C) Wednesday

D) Thursday

15. (Number Sense) Calculate: 936 ÷ 9

A) 14

B) 94

C) 124

D) 104

16. (Algebra) Evaluate the expression 7m + 6 when m = 4.

A) 28

B) 34

C) 42

D) 24

17. (Financial Literacy) A gift bag costs $36. The store offers a 25% discount. What is the sale price?

A) $24

B) $30

C) $27

D) $9

18. (Number Sense) Which fraction is equivalent to 0.6?

A) 3/5

B) 1/6

C) 2/3

D) 6/100

19. (Spatial Sense) How many lines of symmetry does a regular hexagon have?

A) 3

B) 6

C) 4

D) 12

20. (Data Literacy) A bag has 36 candies: 9 red, 12 blue, 6 green, and 9 yellow. What is the probability of choosing a blue candy, in simplest form?

A) 12/12

B) 9/36

C) 6/36

D) 1/3

21. (Algebra) What is the next term in the sequence: 81, 27, 9, 3, ___?

A) 1

B) 0

C) 6

D) -3

22. (Number Sense) Simplify the fraction: 30/45

A) 5/15

B) 6/9

C) 2/3

D) 3/4

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) A rectangular garden is 12 m long and 8 m wide. What is its area?

A) 20 m^2

B) 40 m^2

C) 48 m^2

D) 96 m^2

24. (Number Sense) Calculate: 7/8 - 1/4

A) 6/8

B) 5/8

C) 4/8

D) 1/4

25. (Algebra) Solve for x: $4x + 13 = 41$

A) 5

B) 6

C) 7

D) 8

26. (Data Literacy) Five athletes recorded their finishing times in minutes: 12, 14, 11, 13, 15. What is the mean?

A) 13

B) 12

C) 14

D) 15

27. (Number Sense) Evaluate: $24 + 6^2 \div 4$

A) 30

B) 36

C) 39

D) 33

28. (Financial Literacy) Luna deposits $500 in a savings account at 4% simple interest per year. How much interest will she earn after 3 years?

A) $20

B) $60

C) $80

D) $120

29. (Spatial Sense) What is the area of a triangle with a base of 10 cm and a height of 6 cm?

A) 30 cm^2

B) 60 cm^2

C) 16 cm^2

D) 120 cm^2

30. (Algebra) A taxi charges a $4.50 base fee plus $1.25 per kilometer. Which expression represents the cost for k kilometers?

A) 4.50k + 1.25

B) 5.75k

C) 4.50 + 1.25k

D) 4.50(1.25 + k)

31. (Data Literacy) Seven values were recorded in a survey: 16, 22, 14, 19, 22, 18, 22. What is the mode?

A) 19

B) 22

C) 18

D) 14

32. (Data Literacy) Find the range of this data set: 45, 28, 51, 33, 40, 25.

A) 51

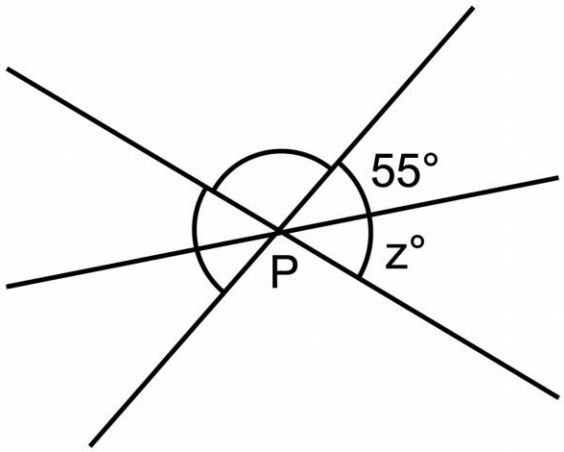
B) 25

C) 28

D) 26

33. (Spatial Sense) The diagram shows two intersecting lines forming four angles.

Figure PQ-3



What is the value of z?

A) 35°

B) 90°

C) 125°

D) 145°

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Which list shows these integers ordered from greatest to least? -5, 3, 0, -2, 7

A) 7, 3, 0, -2, -5

B) -5, -2, 0, 3, 7

C) 7, 3, 0, -5, -2

D) 0, 3, 7, -2, -5

35. (Algebra) If 7m - 9 = 47, what is the value of m?

A) 7

B) 8

C) 9

D) 10

36. (Data Literacy) A spinner has 24 equal sections: 8 red, 4 blue, 6 green, and 6 yellow. What is the probability of NOT spinning green, in simplest form?

A) 1/4

B) 6/18

C) 18/30

D) 3/4

37. (Spatial Sense) What is the sum of the interior angles of a quadrilateral?

A) 360°

B) 180°

C) 540°

D) 720°

38. (Number Sense) What is 4/5 of 60?

A) 12

B) 75

C) 48

D) 50

39. (Financial Literacy) Tom wants to buy a bike costing $480. He has already saved $180. If he saves $30 each week, how many more weeks will it take him to reach his goal?

A) 8 weeks

B) 12 weeks

C) 16 weeks

D) 10 weeks

40. (Algebra) A rectangle has a width of w cm. Its length is 4 more than three times the width. Which expression represents the perimeter?

A) $6w + 4$

B) $8w + 8$

C) $8w + 4$

D) $6w + 8$

41. (Number Sense) What number completes this equivalent fraction? $4/9 = ?/54$

A) 18

B) 22

C) 24

D) 27

42. (Data Literacy) In a class of 32 students, the ratio of boys to girls is 5:3. How many girls are in the class?

A) 12

B) 15

C) 20

D) 8

43. (Spatial Sense) A cube has a total surface area of 96 cm^2. What is the area of one face?

A) 8 cm^2

B) 24 cm²

C) 12 cm²

D) 16 cm²

44. (Number Sense) A recipe needs 1 1/2 cups of milk. How much milk is needed for 1/3 of the recipe?

A) 1/3 cup

B) 1/2 cup

C) 4 1/2 cups

D) 1 1/6 cups

Practice Exam 15: Answer Key and Explanations

1. B — The digit 2 occupies the hundred-thousands place in 8,206,471. Reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 2 sits in the sixth position with a value of 200,000. Place value identification is fundamental for reading and comparing large numbers.

2. C — Starting at 96 and dividing by 2 each time: term 1 = 96, term 2 = 48, term 3 = 24, term 4 = 12. This geometric sequence has a common ratio of 1/2, where each term is half the previous one. Recognizing dividing patterns extends understanding of multiplicative sequences.

3. D — A hexagonal prism has 8 faces total: 2 hexagonal bases plus 6 rectangular lateral faces connecting the bases. The formula for prism faces equals 2 (bases) + n (sides matching the base's sides). Understanding face counts supports surface area calculations and net construction.

4. A — Align decimal points and add: 36.40 + 19.78 = 56.18. Writing 36.4 as 36.40 ensures matching decimal places before adding. Proper alignment of place values is essential for accurate decimal operations in measurement and money contexts.

5. B — Reading the bar graph, the May bar reaches exactly 60 mm of rainfall. Identifying specific values on bar graphs requires matching the top of each bar to the corresponding y-axis value. Bar graphs allow direct reading of categorical data points.

6. D — Compare decimals by examining place values from left to right: 0.45 has 4 tenths and 5 hundredths. The value 0.5 (or 0.50) has 5 tenths, exceeding 0.45's 4 tenths. The others (0.4, 0.405) have fewer than 5 tenths, while 0.45 equals (not exceeds) the comparison value.

7. C — Calculate 13% tax: 0.13 × $24 = $3.12. Breaking down: 10% of $24 = $2.40, plus 3% of $24 = $0.72, totaling $3.12. Sales tax calculations require finding the percent of the base price to determine added cost.

8. A — Solve by subtracting 24 from both sides: $h + 24 = 51 \rightarrow h = 51 - 24 = 27$. Subtraction is the inverse operation of addition, used to isolate the variable. Check: $27 + 24 = 51$ ✓. One-step equations build foundational algebraic skills.

9. C — An equilateral triangle has three sides of equal length and three equal angles (each measuring 60°). Right triangles have one 90° angle, isosceles triangles have two equal sides, and scalene triangles have no equal sides. Side relationships classify triangles uniquely.

10. B — Convert kilograms to grams by multiplying by 1,000: $6.3 \text{ kg} \times 1{,}000 = 6{,}300 \text{ g}$. 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.

11. A — "Twice a number n" translates to $2n$ (multiplication first), and "the sum of...and 9" means add 9, producing $2n + 9$. The phrase "sum" indicates addition, with both quantities combined. Algebraic translation requires careful attention to keywords.

12. D — Multiply 6×87: using the distributive property, $6 \times 87 = 6 \times (80 + 7) = 480 + 42 = 522$. Breaking large multiplications into manageable parts using place value reduces calculation errors. Verification: $522 \div 6 = 87$ ✓.

13. C — The radius equals half the diameter: $r = d/2 = 14/2 = 7$ cm. The diameter extends from edge to edge through the center, while the radius extends from center to edge. Understanding this relationship supports circle measurement calculations.

14. A — Reading the line graph, Monday's data point reaches 28°C, higher than Tuesday (22°C), Wednesday (18°C), or Thursday (20°C). Identifying maximum values on line graphs requires comparing all plotted points. Line graphs effectively show changes over time.

15. D — Divide 936 by 9: breaking this down, $900 \div 9 = 100$, plus $36 \div 9 = 4$, giving $100 + 4 = 104$. Verification: $9 \times 104 = 936$ ✓. Division efficiency improves with familiarity with multiplication facts and partial quotient strategies.

16. B — Substitute $m = 4$ into the expression $7m + 6$: $7(4) + 6 = 28 + 6 = 34$. Order of operations requires performing multiplication before addition per BEDMAS. Evaluating algebraic expressions connects symbolic algebra to numerical results.

17. C — Calculate the discount: 25% of \$36 = $0.25 \times \$36 = \$9$. Subtract from original price: \$36 - \$9 = \$27. Recognizing 25% as 1/4 enables quick mental calculation: \$36 ÷ 4 = \$9 discount. Sale price calculations support consumer decisions.

18. A — Convert 0.6 to a fraction: $0.6 = 6/10$. Simplify by dividing both numerator and denominator by their greatest common factor (2): $6/10 = 3/5$. Decimal-to-fraction conversion requires placing the decimal over the appropriate power of 10, then reducing to simplest form.

19. B — A regular hexagon has 6 lines of symmetry: three lines connecting opposite vertices and three lines connecting midpoints of opposite sides. Each line divides the hexagon into two mirror-image halves. Regular polygons have the same number of lines of symmetry as their number of sides.

20. D — Probability equals favorable outcomes divided by total outcomes: P(blue) = 12/36. Simplify by dividing both by 12: 12/36 = 1/3 in simplest form. Reducing fractions to lowest terms makes probability easier to interpret and compare.

21. A — The pattern divides by 3 each time: 81 ÷ 3 = 27, 27 ÷ 3 = 9, 9 ÷ 3 = 3, 3 ÷ 3 = 1. This geometric sequence has a common ratio of 1/3 between consecutive terms. Identifying the dividing relationship enables prediction of subsequent terms.

22. C — Simplify 30/45 by dividing both numerator and denominator by their greatest common factor (15): 30/45 = (30÷15)/(45÷15) = 2/3. Equivalent fractions represent the same value despite different appearance. Reducing to simplest form supports easier comparison.

23. D — Area of a rectangle = length × width = 12 × 8 = 96 m². Area measures the two-dimensional space inside a shape, expressed in square units. This calculation supports practical applications like determining garden sizes or flooring needs.

24. B — Find common denominator (8): 7/8 - 1/4 = 7/8 - 2/8 = 5/8. Converting 1/4 to eighths by multiplying numerator and denominator by 2. Like denominators are required for subtracting fractions so numerators represent parts of the same-sized whole.

25. C — Solve the two-step equation: 4x + 13 = 41 → subtract 13 from both sides: 4x = 28 → divide both sides by 4: x = 7. Check: 4(7) + 13 = 28 + 13 = 41 ✓. Two-step equations require systematic application of inverse operations.

26. A — Calculate mean by summing values and dividing by count: (12 + 14 + 11 + 13 + 15) ÷ 5 = 65 ÷ 5 = 13. 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.

27. D — Follow order of operations: exponent first: $6^2 = 36$; then division: 36 ÷ 4 = 9; finally addition: 24 + 9 = 33. BEDMAS dictates this sequence: exponents before division before addition. Each operation must be performed in correct order.

28. B — Use the simple interest formula: I = P × r × t = \$500 × 0.04 × 3 = \$60. Principal (\$500) 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.

29. A — Area of a triangle = (1/2) × base × height = (1/2) × 10 × 6 = 30 cm². The height must be perpendicular to the base. This formula derives from the fact that a triangle is half of a parallelogram with the same base and height.

30. C — The fixed base fee is $4.50, and the variable cost is $1.25 per kilometer. For k kilometers, the variable cost is 1.25k. Total cost: 4.50 + 1.25k. The constant term represents fixed costs while the coefficient times variable represents usage-based costs.

31. B — The mode is the value occurring most frequently in a dataset. In {16, 22, 14, 19, 22, 18, 22}, the value 22 appears three times while all others appear only once. Mode identifies the most common occurrence, useful for analyzing repeated measurements.

32. D — Range equals maximum minus minimum: maximum = 51, minimum = 25, so range = 51 - 25 = 26. 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. C — Angles forming a linear pair (on a straight line) are supplementary, summing to 180°. The angle of 55° and angle z share a straight line, so z = 180° - 55° = 125°. Linear pair relationships enable calculation of unknown angles when adjacent angles share a straight line.

34. A — Order from greatest to least places the largest positive number first, then decreasing values: 7 (greatest), 3, 0, -2, -5 (least). With negative numbers, the larger the absolute value, the smaller the number. Integer ordering applies to temperature, elevation, and financial contexts.

35. B — Solve: 7m - 9 = 47 → add 9 to both sides: 7m = 56 → divide both sides by 7: m = 8. Check: 7(8) - 9 = 56 - 9 = 47 ✓. Two-step equation solving applies inverse operations systematically to isolate the variable.

36. D — Probability of not green equals total non-green sections divided by total: (8 + 4 + 6)/24 = 18/24 = 3/4 in simplest form. Complementary probabilities (green vs. not green) always sum to 1: 6/24 + 18/24 = 24/24 = 1. Simplifying gives the probability in lowest terms.

37. A — The interior angles of any quadrilateral sum to 360°. This property applies to all four-sided polygons regardless of type (square, rectangle, parallelogram, trapezoid). The formula (n - 2) × 180° gives this: (4 - 2) × 180° = 360°. Understanding angle sums supports geometric problem-solving.

38. C — Calculate 4/5 of 60: multiply the fraction by the whole number: (4/5) × 60 = (4 × 60)/5 = 240/5 = 48. Alternatively, find 1/5 of 60 (which is 12), then multiply by 4: 12 × 4 = 48. Finding fractional parts connects fractions to multiplication and division.

39. D — Calculate remaining amount needed: $480 - $180 = $300. Divide by weekly savings: $300 ÷ $30 = 10 weeks. Two-step financial calculations require first determining the gap to close, then dividing by the regular contribution rate to find the timeline.

40. B — The length equals 3w + 4 (4 more than three times the width). Perimeter = 2(length) + 2(width) = 2(3w + 4) + 2w = 6w + 8 + 2w = 8w + 8. Combining like terms (6w + 2w = 8w) simplifies the expression to its final form.

41. C — The denominator changes from 9 to 54, which is multiplying by 6 ($9 \times 6 = 54$). Apply the same factor to the numerator: $4 \times 6 = 24$. Therefore, $4/9 = 24/54$. Equivalent fractions are created by multiplying both parts by the same value, preserving the ratio.

42. A — The ratio 5:3 represents $5 + 3 = 8$ total parts. Divide total students by parts: $32 \div 8 = 4$ students per part. Girls account for 3 parts: $3 \times 4 = 12$ girls. Ratios proportionally divide a whole into specified parts based on the given relationship.

43. D — A cube has 6 equal faces. Divide total surface area by number of faces: $96 \div 6 = 16$ cm² per face. Since each face is a square, this also means each side length is $\sqrt{16} = 4$ cm. Understanding shape symmetry simplifies many area problems.

44. B — Calculate 1/3 of 1 1/2 by converting to improper fraction and multiplying: $1\ 1/2 = 3/2$, then $(3/2) \times (1/3) = 3/6 = 1/2$ cup. When multiplying fractions, multiply numerators together and denominators together, then simplify. Scaling recipes requires proportional adjustment of all ingredients.