PRACTICE EXAM 19: EQAO GRADE 6 MATHEMATICS SIMULATION (44 QUESTIONS)

STAGE 1 (Questions 1-11) — 30 minutes

1. (Number Sense) What is the digit in the hundred-thousands place of the number 6,524,791?

A) 6

B) 5

C) 2

D) 4

2. (Algebra) A pattern follows the rule "double the previous term and subtract 5." If the first term is 6, what is the 4th term?

A) 13

B) 19

C) 17

D) 11

3. (Spatial Sense) A square pyramid has a square base with each side measuring 8 cm. What is the perimeter of the base?

A) 8 cm

B) 24 cm

C) 16 cm

D) 32 cm

4. (Number Sense) Calculate: 27.6 ÷ 4

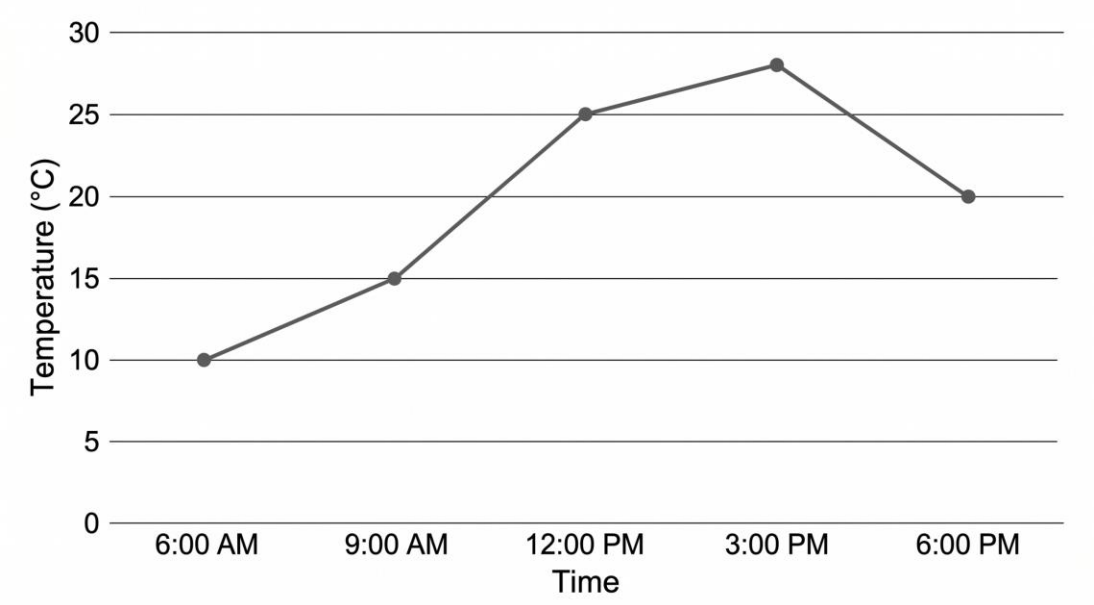
A) 6.5

B) 6.7

C) 6.9

D) 7.1

5. (Data Literacy) The line graph shows the temperature recorded throughout one day.



What was the change in temperature from 9:00 AM to 12:00 PM?

A) 5°C

B) 10°C

C) 15°C

D) 20°C

6. (Number Sense) Round 8,374,562 to the nearest hundred thousand.

A) 8,000,000

B) 8,300,000

C) 8,375,000

D) 8,400,000

7. (Financial Literacy) A wallet costs $45 before tax. The sales tax is 8%. What is the total cost?

A) $48.60

B) $47.60

C) $48.00

D) $50.00

8. (Algebra) Solve for n: 4(n - 5) = 24

A) 6

B) 9

C) 11

D) 16

9. (Spatial Sense) A circular garden has a radius of 4 m. What is its circumference? (Use $\pi \approx 3.14$)

A) 12.56 m

B) 25.12 m

C) 50.24 m

D) 8 m

10. (Number Sense) What is the least common multiple (LCM) of 12 and 18?

A) 12

B) 18

C) 36

D) 72

11. (Algebra) A linear pattern is given by the rule t = 4n - 1, where n is the term number. What is the 8th term?

A) 31

B) 27

C) 35

D) 25

STAGE 2 (Questions 12-22) — 30 minutes

12. (Number Sense) Calculate: 0.625 + 1/4

A) 0.65

B) 1.875

C) 0.825

D) 0.875

13. (Spatial Sense) How many faces does a pentagonal pyramid have?

A) 5

B) 4

C) 6

D) 7

14. (Data Literacy) A class has 24 students. Five-eighths of them play sports. How many students do NOT play sports?

A) 15

B) 9

C) 12

D) 6

15. (Number Sense) Sara has 3/4 cup of flour. She uses 1/3 of it for a recipe. How much flour did she use?

A) 1/4 cup

B) 1/12 cup

C) 1/2 cup

D) 9/12 cup

16. (Algebra) Which equation represents the statement "a number tripled, decreased by 8 equals 22"?

A) $n/3 - 8 = 22$

B) $3(n - 8) = 22$

C) $3n + 8 = 22$

D) $3n - 8 = 22$

17. (Financial Literacy) A laptop costs $750. The store applies a 15% discount, then adds 12% sales tax to the discounted price. What is the final price?

A) $702.00

B) $720.00

C) $714.00

D) $645.00

18. (Data Literacy) A survey shows that 60% of 50 students prefer pizza. How many students prefer something other than pizza?

A) 30

B) 20

C) 25

D) 10

19. (Spatial Sense) What is the volume of a cube with edge length 6 cm?

A) 36 cm^3

B) 144 cm^3

C) 196 cm^3

D) 216 cm^3

20. (Data Literacy) The mean of four numbers is 24. Three of the numbers are 18, 22, and 30. What is the fourth number?

A) 26

B) 24

C) 22

D) 28

21. (Algebra) What is the next term in this sequence: 5, 8, 13, 20, 29, ___?

A) 36

B) 38

C) 40

D) 41

22. (Number Sense) What is 35% of 240?

A) 60

B) 84

C) 96

D) 105

STAGE 3 (Questions 23-33) — 30 minutes

23. (Spatial Sense) In a triangle, two angles measure 48° and 67°. What is the third angle?

A) 65°

B) 75°

C) 85°

D) 55°

24. (Number Sense) A factory produces 480 widgets in 8 hours. At this rate, how many widgets are produced in 15 hours?

A) 720

B) 750

C) 840

D) 900

25. (Algebra) If $2(x + 3) = x + 12$, what is the value of x?

A) 3

B) 6

C) 9

D) 12

26. (Data Literacy) A bag of marbles contains 4 red, 6 blue, 8 green, and 2 yellow marbles. What is the probability of drawing a red or yellow marble, in simplest form?

A) 4/20

B) 2/20

C) 3/10

D) 1/2

27. (Number Sense) What is the prime factorization of 84?

A) $2^2 \times 3 \times 7$

B) $2 \times 3 \times 14$

C) 4×21

D) $2^3 \times 3 \times 7$

28. (Financial Literacy) James saves $20 per week and started with $80 in his account. After how many weeks will he have $260?

A) 4 weeks

B) 6 weeks

C) 8 weeks

D) 9 weeks

29. (Spatial Sense) Point M is at coordinates (-3, 4). When M is rotated 180° about the origin, what are the new coordinates?

A) (4, -3)

B) (3, -4)

C) (-3, -4)

D) (-4, 3)

30. (Algebra) A restaurant charges $8 per pizza plus a $4 delivery fee. If Sarah's total bill was $36, how many pizzas did she order?

A) 4

B) 5

C) 6

D) 3

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

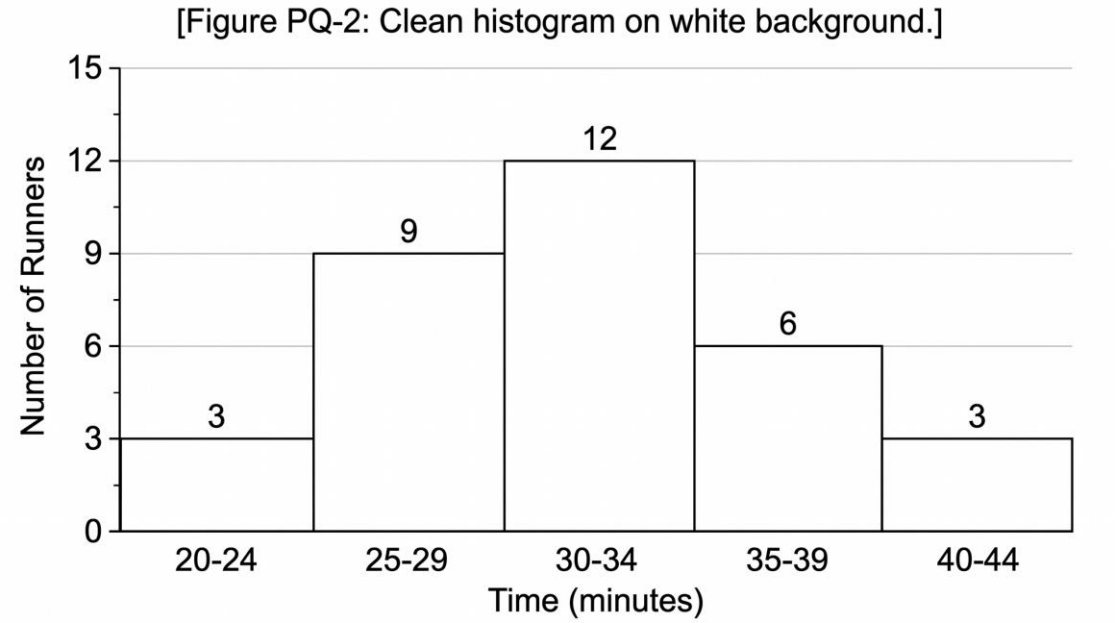
A) 8

B) 12

C) 14

D) 18

32. (Data Literacy) The histogram shows the times runners completed a 5K race.



What is the total number of runners?

A) 30

B) 31

C) 32

D) 33

33. (Spatial Sense) A rectangle has length 14 cm and width 6 cm. Its perimeter equals the perimeter of a square. What is the side length of the square?

A) 10 cm

B) 12 cm

C) 8 cm

D) 14 cm

STAGE 4 (Questions 34-44) — 30 minutes

34. (Number Sense) Order these numbers from least to greatest: 0.45, 1/2, 0.4, 3/8

A) 0.4, 3/8, 0.45, 1/2

B) 3/8, 0.4, 0.45, 1/2

C) 1/2, 0.45, 0.4, 3/8

D) 3/8, 0.45, 0.4, 1/2

35. (Algebra) A rectangle's length is 3 cm more than twice its width. If the perimeter is 36 cm, what is the width?

A) 3 cm

B) 4 cm

C) 6 cm

D) 5 cm

36. (Data Literacy) In a class of 30 students, the ratio of those who walk to school to those who take the bus is 2:3. How many students take the bus?

A) 12

B) 15

C) 18

D) 20

37. (Spatial Sense) A regular pentagon has each side measuring 11 cm. What is its perimeter?

A) 50 cm

B) 55 cm

C) 44 cm

D) 60 cm

38. (Number Sense) Mark spent 1/4 of his money on snacks and 2/5 of his money on a book. What fraction of his money is left?

A) 7/20

B) 13/20

C) 3/9

D) 9/20

39. (Financial Literacy) Mia invests $400 in a savings account at 4% simple interest per year. After 3 years, how much money will be in the account?

A) $432

B) $440

C) $448

D) $452

40. (Algebra) Solve for y: 6y - 8 = 4y + 14

A) 3

B) 6

C) 9

D) 11

41. (Number Sense) A train travels 360 km in 4.5 hours. At this rate, how long will it take to travel 240 km?

A) 3 hours

B) 2.5 hours

C) 3.5 hours

D) 4 hours

42. (Data Literacy) A spinner is divided into 10 equal sections numbered 1 through 10. What is the probability of spinning a prime number, in simplest form?

A) 1/5

B) 2/5

C) 3/10

D) 1/2

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

[Figure PQ-3: Clean black-line diagram on white background. Two horizontal parallel lines with a diagonal transversal crossing through both. The transversal creates eight angles. The angle in the

upper-right position where the transversal meets the top parallel line (above the top line) is labeled "(3x - 10)°" with an arc marking. The angle in the lower-left position where the transversal meets the bottom parallel line (below the bottom line) is labeled "(2x + 25)°" with an arc marking. These two angles are alternate exterior angles. Both parallel lines and transversal clearly drawn.]

What is the value of x?

A) 25

B) 30

C) 40

D) 35

44. (Number Sense) A pizza is cut into 12 equal slices. Tom eats 1/3 of the pizza and Jenny eats 1/4 of the pizza. How many slices are left?

A) 3

B) 7

C) 5

D) 8

Practice Exam 19: Answer Key and Explanations

1. B — The digit 5 occupies the hundred-thousands place in 6,524,791. Reading positions from right to left (ones, tens, hundreds, thousands, ten-thousands, hundred-thousands), the digit 5 sits in the sixth position with a value of 500,000. Place value identification is fundamental for reading large numbers.

2. A — Starting at 6 and applying "double then subtract 5" each time: term 1 = 6, term 2 = (6 × 2) - 5 = 7, term 3 = (7 × 2) - 5 = 9, term 4 = (9 × 2) - 5 = 13. Compound pattern rules require applying both operations in sequence to each new term.

3. D — A square has 4 equal sides. Perimeter equals the sum of all sides: 4 × 8 = 32 cm. The base of a square pyramid is a square, so the same perimeter formula applies. Recognizing the base shape determines which formula to use.

4. C — Divide 27.6 by 4: think of 27.6 as 27 + 0.6, then 27 ÷ 4 = 6.75 and 0.6 ÷ 4 = 0.15, totaling 6.9. Alternatively, 276 ÷ 4 = 69, then place the decimal one position from right: 6.9. Verification: 4 × 6.9 = 27.6 ✓.

5. B — Subtract the 9:00 AM temperature from the 12:00 PM temperature: 25°C - 15°C = 10°C. Temperature change calculations measure the difference between two specific points on a line graph. The result is positive because the temperature increased.

6. D — To round 8,374,562 to the nearest hundred thousand, examine the digit immediately to the right (ten-thousands place): 7. Since $7 \geq 5$, round up. The hundred-thousands digit changes from 3 to 4, giving 8,400,000. Rounding rules depend entirely on the next-place digit.

7. A — Calculate 8% tax: $0.08 \times \$45 = \$3.60$. Add tax to original price: $\$45.00 + \$3.60 = \$48.60$. Sales tax calculations require finding the percent of the base price and adding it to determine total cost. This skill supports daily purchases.

8. C — Distribute first: $4(n - 5) = 24 \rightarrow 4n - 20 = 24$. Add 20 to both sides: $4n = 44$. Divide by 4: $n = 11$. Check: $4(11 - 5) = 4(6) = 24$ ✓. Equations with parentheses require distributing before isolating the variable.

9. B — Circumference of a circle = $2\pi r = 2 \times 3.14 \times 4 = 25.12$ m. The formula uses the radius (distance from center to edge) multiplied by 2π. Circumference measures the distance around a circle, analogous to perimeter for polygons.

10. C — Find prime factorizations: $12 = 2^2 \times 3$ and $18 = 2 \times 3^2$. LCM takes the highest power of each prime: $2^2 \times 3^2 = 4 \times 9 = 36$. Verification: $36 \div 12 = 3$ and $36 \div 18 = 2$ ✓. LCM is the smallest number both divide into evenly.

11. A — Substitute $n = 8$ into the formula: $4(8) - 1 = 32 - 1 = 31$. Term formulas allow direct calculation for any position without listing previous terms. Order of operations requires multiplication before subtraction.

12. D — Convert 1/4 to a decimal: $1/4 = 0.25$. Add: $0.625 + 0.25 = 0.875$. Converting fractions to decimals enables addition with decimal values. Aligning decimal points ensures proper addition: $0.625 + 0.250 = 0.875$.

13. C — A pentagonal pyramid has 6 faces total: 1 pentagonal base plus 5 triangular faces meeting at the apex. The formula for pyramid faces equals 1 (base) + n (sides matching the base's sides). Recognizing 3D shapes from face counts supports spatial reasoning.

14. B — Calculate students who play sports: $(5/8) \times 24 = 5 \times 3 = 15$ students. Subtract from total: $24 - 15 = 9$ students who do not play sports. Multi-step word problems require finding the part first, then using complementary subtraction to find the remainder.

15. A — Multiply the fractions: $(1/3) \times (3/4) = (1 \times 3)/(3 \times 4) = 3/12 = 1/4$ cup. When multiplying fractions, multiply numerators together and denominators together, then simplify. Finding a fraction of a fraction connects multiplication to "of."

16. D — Translate the phrase step-by-step: "a number tripled" = 3n; "decreased by 8" = subtract 8, giving 3n - 8; "equals 22" gives the equation 3n - 8 = 22. The order of operations in the phrase determines the algebraic structure.

17. C — Calculate the discount: 15% of \$750 = 0.15 × \$750 = \$112.50. Sale price: \$750 - \$112.50 = \$637.50. Apply tax: 12% of \$637.50 = 0.12 × \$637.50 = \$76.50. Final price: \$637.50 + \$76.50 = \$714.00. Sequential percent calculations must be applied in order.

18. B — Calculate students who prefer pizza: 60% × 50 = 0.60 × 50 = 30 students. Subtract from total: 50 - 30 = 20 students prefer other foods. Complementary percentages can also be used: 100% - 60% = 40%, and 40% of 50 = 20.

19. D — Volume of a cube = edge³ = 6^3 = 6 × 6 × 6 = 216 cm³. Cubing the edge length gives the total cubic units that fit inside. Volume measures three-dimensional space, expressed in cubic units.

20. A — Calculate the total sum: 4 × 24 = 96. Subtract the three known values: 96 - 18 - 22 - 30 = 96 - 70 = 26. Working backward from the mean requires using sum = mean × count, then isolating the unknown by subtraction.

21. C — The differences between consecutive terms increase by 2: 8-5=3, 13-8=5, 20-13=7, 29-20=9. The next difference is 11, so 29 + 11 = 40. Identifying patterns in differences reveals quadratic-style growth.

22. B — Convert 35% to a decimal: 0.35. Multiply: 0.35 × 240 = 84. Alternatively, find 10% of 240 (which is 24), multiply by 3 to get 30%, then add 5% (12): 72 + 12 = 84. Multiple strategies reach the same answer.

23. A — The interior angles of any triangle sum to 180°. The third angle equals 180° - 48° - 67° = 180° - 115° = 65°. This angle sum property holds for all triangles regardless of type, making it a powerful tool for finding missing angles.

24. D — Calculate the production rate: 480 widgets ÷ 8 hours = 60 widgets/hour. Multiply by new time: 60 × 15 = 900 widgets. Rate problems use the relationship total = rate × time. Finding the unit rate first enables calculation for any time period.

25. B — Distribute: 2(x + 3) = x + 12 → 2x + 6 = x + 12. Subtract x from both sides: x + 6 = 12. Subtract 6: x = 6. Check: 2(6 + 3) = 18 and 6 + 12 = 18 ✓. Variables on both sides require careful manipulation.

26. C — Add favorable outcomes: 4 red + 2 yellow = 6. Total marbles: 4 + 6 + 8 + 2 = 20. Probability: 6/20 = 3/10 in simplest form. When events are mutually exclusive, their probabilities are added together, then simplified.

27. A — Prime factorization: $84 = 2 \times 42 = 2 \times 2 \times 21 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7$. The other options contain composite numbers or incorrect exponents. Verification: $2^2 \times 3 \times 7 = 4 \times 21 = 84$ ✓. Only primes appear in true prime factorizations.

28. D — Calculate amount still needed: \$260 - \$80 = \$180. Divide by weekly savings: \$180 ÷ \$20 = 9 weeks. Multi-step financial problems require finding the gap first, then dividing by the regular contribution rate.

29. B — A 180° rotation about the origin transforms $(x, y) \rightarrow (-x, -y)$. Applied to (-3, 4): the new x-coordinate is -(-3) = 3, and the new y-coordinate is -(4) = -4. New coordinates: (3, -4). This rotation creates a point diametrically opposite through the origin.

30. A — Subtract the delivery fee from total: \$36 - \$4 = \$32 for pizzas only. Divide by cost per pizza: \$32 ÷ \$8 = 4 pizzas. Two-step problems separate fixed costs (delivery fee) from variable costs (per pizza) before solving.

31. C — Follow order of operations: exponents first: $4^3 = 64$ and $5^2 = 25$; then multiplication: $2 \times 25 = 50$; finally subtraction: 64 - 50 = 14. BEDMAS dictates this sequence. Each operation must be performed in the correct order.

32. D — Sum all bar heights: 3 + 9 + 12 + 6 + 3 = 33 runners. The total in a histogram equals the sum of frequencies across all intervals. Reading histograms requires identifying each bar's value and summing them.

33. A — Calculate the rectangle's perimeter: 2(14) + 2(6) = 28 + 12 = 40 cm. Divide by 4 (sides of a square): 40 ÷ 4 = 10 cm. Equating perimeters requires finding the total first, then applying the square's equal-sides property.

34. B — Convert all values to decimals for comparison: 0.45, 1/2 = 0.5, 0.4, 3/8 = 0.375. Order from least to greatest: $0.375 < 0.4 < 0.45 < 0.5$, which corresponds to 3/8, 0.4, 0.45, 1/2. Common form enables accurate comparison.

35. D — Let w = width. Length = 2w + 3. Perimeter: $2(2w + 3) + 2w = 36 \rightarrow 4w + 6 + 2w = 36 \rightarrow 6w + 6 = 36 \rightarrow 6w = 30 \rightarrow w = 5$ cm. Check: length = 13, perimeter = 2(13) + 2(5) = 26 + 10 = 36 ✓.

36. C — The ratio 2:3 represents 2 + 3 = 5 total parts. Divide total students by parts: 30 ÷ 5 = 6 students per part. Bus riders account for 3 parts: 3 × 6 = 18 students. Ratios proportionally divide a whole into specified groups.

37. B — A regular pentagon has 5 equal sides. Perimeter equals the sum of all sides: 5 × 11 = 55 cm. Regular polygons have perimeters calculated by multiplying side length by the number of sides. This shortcut applies to any regular polygon.

38. A — Find common denominator (20): 1/4 = 5/20 and 2/5 = 8/20. Total spent: 5/20 + 8/20 = 13/20. Remaining: 1 - 13/20 = 20/20 - 13/20 = 7/20. Subtracting from a whole requires expressing 1 as the matching fraction.

39. C — Calculate simple interest: I = P × r × t = $400 × 0.04 × 3 = $48. Add to principal: $400 + $48 = $448. The total account balance equals starting deposit plus interest earned. Simple interest grows savings predictably over time.

40. D — Subtract 4y from both sides: 6y - 4y - 8 = 14 → 2y - 8 = 14. Add 8: 2y = 22. Divide by 2: y = 11. Check: 6(11) - 8 = 58 and 4(11) + 14 = 58 ✓. Variables on both sides require combining like terms first.

41. A — Calculate the rate: 360 km ÷ 4.5 hours = 80 km/h. Calculate time for new distance: 240 ÷ 80 = 3 hours. Constant-rate problems use the relationships rate = distance ÷ time and time = distance ÷ rate. Finding the unit rate first enables flexible calculation.

42. B — Identify prime numbers from 1-10: 2, 3, 5, 7 (four primes). Note that 1 is not prime. Probability: 4/10 = 2/5 in simplest form. A prime number has exactly two factors: 1 and itself. Simplifying gives the probability in lowest terms.

43. D — Alternate exterior angles formed by parallel lines and a transversal are equal: 3x - 10 = 2x + 25. Subtract 2x from both sides: x - 10 = 25. Add 10: x = 35. Check: 3(35) - 10 = 95 and 2(35) + 25 = 95 ✓.

44. C — Tom's slices: (1/3) × 12 = 4. Jenny's slices: (1/4) × 12 = 3. Total eaten: 4 + 3 = 7 slices. Remaining: 12 - 7 = 5 slices. Multi-step fraction problems require finding each part of a whole, then subtracting from the total.