

BHAVAN'S OLYMPIAD FOUNDATION (BOF) – 2025

BMO Mathematics Solutions & Answer Key — Class 4

Full Marks: 50

Total Questions: 45

Time: 1 Hour

Class: 4th Grade

GENERAL SECTION (QUESTIONS 1 – 40)

Q1. What is the sum of 1245 and 2567?

- a) 3812 b) 3712 c) 3802 d) 3902

Correct Option: a) 3812

Explanation: $1245 + 2567 = 3812$.

Q2. A number is subtracted from 5000 and the result is 3234. What is the number?

- a) 2450 b) 3266 c) 1766 d) 4096

Correct Option: c) 1766

Explanation: Required number = $5000 - 3234 = 1766$.

Q3. Find the number which has 3 in the lakhs place, 2 in the thousands place, 9 in the ones place.

- a) 302009 b) 320009 c) 320901 d) 3102109

Correct Option: a) 302009

Explanation: 3 Lakhs (3,00,000) + 2 Thousands (2,000) + 9 Ones (9) = 3,02,009.

Q4. Which of the following is not correct?

- a) $439 + 561 = 1000$ b) $800 + 200 = 1000$
c) $123 + 876 = 999$ d) $123 + 879 = 1000$

Correct Option: d) $123 + 879 = 1000$

Explanation: $123 + 879 = 1002$, which is not equal to 1000. Thus (d) is incorrect.

Q5. Find the missing Number: $_ + 345 = 789$

- a) 450 b) 444 c) 464 d) 409

Correct Option: b) 444

Explanation: Missing number = $789 - 345 = 444$.

Q6. What is the difference between the place value and face value of 6 in 864291?

- a) 6000 b) 5994 c) 5940 d) 59900

Correct Option: d) 59994 (Nearest Option: d)

Explanation: Place value = 60,000, Face value = 6.
Difference = $60,000 - 6 = 59,994$ (Typo in options as 59900/59940; correct calculation gives 59,994).

Q21. What is the total number of fruits sold in the pictograph?

- a) 180 b) 200 c) 220 d) 210

Correct Option: d) 210

Explanation: Apples(50) + Bananas(80) + Mangoes(60) + Grapes(20) = 210.

Q22. How many hundreds are there in 97321 + 4057?

- a) 78 b) 1300 c) 3 d) 5

Correct Option: c) 3 (or 1013 total hundreds)

Explanation: Sum = 1,01,378. Digit at hundreds place is 3.

Q23. What is the perimeter of the given L-shaped figure (Sides: 12, 10, 10, 2, 2, 8)?

- a) 48 cm b) 44 cm c) 42 cm d) 46 cm

Correct Option: b) 44 cm

Explanation: Sum of all outer sides = $12 + 10 + 2 + 8 + 10 + 2 = 44$ cm.

Q24. Clock shows 4:05. How many minutes to add to make quarter to 5 (4:45)?

- a) 45 min b) 40 min c) 55 min d) 25 min

Correct Option: b) 40 min

Explanation: Quarter to 5 is 4:45. Difference from 4:05 = $45 - 5 = 40$ minutes.

Q25. Find all the factors of 12.

- a) 2,3,4,6 b) 1,2,3,4,6 c) 1,2,4,6,12 d) 1,2,3,4,6,12

Correct Option: d) 1,2,3,4,6,12

Explanation: Numbers that divide 12 completely are 1, 2, 3, 4, 6, and 12.

Q7. A shopkeeper has 125 candies. He puts 5 candies in each box. How many boxes does he need?

- a) 20 b) 25 c) 30 d) 35

Correct Option: b) 25

Explanation: Number of boxes = $125 \div 5 = 25$.

Q8. How many shapes have both parallel / perpendicular lines?

- a) 1 b) 3 c) 2 d) 4

Correct Option: c) 2

Explanation: Out of the shapes shown (circle, rectangle, arrow, right trapezoid), 2 shapes have parallel/perpendicular lines.

Q9. How many lines of symmetry in letter 'E'?

- a) One b) Three c) Two d) Four

Correct Option: a) One

Explanation: The capital letter 'E' has 1 horizontal line of symmetry.

Q10. A _____ is a chord that passes through the centre of the circle.

- a) radius b) chord c) centre d) diameter

Correct Option: d) diameter

Explanation: By definition, the diameter is the longest chord passing through the centre.

Q11. Fill in the blank with '<', '>' or '=': 5×70 ____ 200

- a) > b) = c) < d) 0

Correct Option: a) >

Explanation: $5 \times 70 = 350$. Since $350 > 200$, the correct symbol is '>'.

Q12. How many symmetrical lines are possible for a parallelogram?

- a) no b) one c) three d) two

Correct Option: a) no

Explanation: A general parallelogram has 0 lines of symmetry.

Q13. A set of pen costs Rs. 600. Find the cost of 20 such pens:

- a) 12,000 b) 10,000 c) 13,002 d) 11,000

Correct Option: a) 12,000

Explanation: Cost = $600 \times 20 = \text{Rs. } 12,000$.

Q26. Ribbon length = 5m. Cut into equal pieces for 25 students. Length each gets?

- a) 20 cm b) 1 m c) 25 cm d) 25 m

Correct Option: a) 20 cm

Explanation: $5 \text{ m} = 500 \text{ cm}$. Each student gets = $500 \div 25 = 20 \text{ cm}$.

Q27. Total cost of 80 ice cream bricks is Rs 640. Cost of 1 brick is:

- a) Rs 800 b) Rs 8 c) Rs 80 d) Rs 900

Correct Option: b) Rs 8

Explanation: Cost of 1 brick = $640 \div 80 = \text{Rs } 8$.

Q28. Clues: Odd, Tens = 9, Hundreds = even, Thousands = least odd (1).

- a) 2497 b) 1495 c) 2698 d) 2785

Correct Option: b) 1495

Explanation: Thousands digit = 1, Hundreds = 4 (even), Tens = 9, Unit = 5 (odd) $\rightarrow 1495$.

Q29. Whole divided into 78 parts, 11 parts shaded. Fraction shaded?

- a) $89/78$ b) $7/11$ c) $67/78$ d) $11/78$

Correct Option: d) $11/78$

Explanation: Shaded fraction = Shaded parts / Total parts = $11/78$.

Q30. If the radius of a circle is 4.5 cm, its diameter will be:

- a) 90 cm b) 49 cm c) 96 cm d) 9 cm

Correct Option: d) 9 cm

Explanation: Diameter = $2 \times \text{Radius} = 2 \times 4.5 \text{ cm} = 9 \text{ cm}$.

Q31. How many grams are there in 3.5 kilograms?

- a) 350 g b) 3500 g c) 3050 g d) 3005 g

Correct Option: b) 3500 g

Explanation: $1 \text{ kg} = 1000 \text{ g}$. So $3.5 \text{ kg} = 3.5 \times 1000 = 3500 \text{ g}$.

Q32. What comes next in pattern: Z, X, V, T, ____?

- a) R b) S c) Q d) U

Correct Option: a) R

Explanation: Skipping 1 letter backwards (26, 24, 22, 20, 18). 18th letter is R.

Q14. Which pattern is it: 8, 88, 888, ...?

- a) reducing b) increasing c) repeating d) growing

Correct Option: d) growing

Explanation: The terms grow in length/value sequentially (growing/increasing pattern).

Q15. Use 1, 0, 4, 1, 6 and build the smallest 5-digit number:

- a) 10,146 b) 11,640 c) 10,461 d) 10,641

Correct Option: a) 10,146

Explanation: Arranging digits in ascending order (non-zero first): 1, 0, 1, 4, 6 gives 10,146.

Q16. The successor of the greatest 6-digit number is:

- a) 1,00,00,000 b) 1,00,000 c) 10,00,000 d) 10,000

Correct Option: c) 10,00,000

Explanation: Greatest 6-digit number = 9,99,999.
Successor = $9,99,999 + 1 = 10,00,000$ (10 Lakhs).

Q17. Write in compact form: $30,000 + 700 + 2,000 + 10 + 6$

- a) 37,216 b) 67,312 c) 32,716 d) 27,316

Correct Option: c) 32,716

Explanation: $30,000 + 2,000 + 700 + 10 + 6 = 32,716$.

Q18. Next number in pattern: 100, 90, 91, 81, 82, ___?

- a) 72 b) 73 c) 78 d) 74

Correct Option: a) 72

Explanation: Pattern alternates: $-10, +1, -10, +1, -10$.
So $82 - 10 = 72$.

Q19. Word: "EDUCATION". What fraction of letters are vowels?

- a) $\frac{4}{10}$ b) $\frac{4}{9}$ c) $\frac{5}{9}$ d) $\frac{2}{9}$

Correct Option: c) $\frac{5}{9}$

Explanation: Total letters = 9. Vowels (E, U, A, I, O) = 5. Fraction = $\frac{5}{9}$.

Q20. [Pictograph: Key = 10 fruits] How many more mangoes sold than grapes?

- a) 20 b) 30 c) 40 d) 10

Correct Option: c) 40

Explanation: Mangoes = 60, Grapes = 20. Difference = $60 - 20 = 40$.

Q33. Which of the following is meaningless in Roman numerals?

- a) XV b) XIX c) IXIV d) XXIV

Correct Option: c) IXIV

Explanation: IX (9) followed by IV (4) is invalid structure in Roman numerals.

Q34. 13746 is 13700 when rounded off to the nearest:

- a) Tens b) Hundreds c) Thousands d) Ten thousands

Correct Option: b) Hundreds

Explanation: Tens digit is 4 (<5), so 13746 rounds down to 13700 (nearest hundred).

Q35. Form the smallest 5-digit odd number using blocks {0, 2, 3, 6, 7}:

- a) 02367 b) 20367 c) 30267 d) 23076

Correct Option: b) 20367

Explanation: Must not start with 0. Smallest non-zero is 2, then 0, 3, 6, ending in odd digit 7.

Q36. Region (ii) numbers {15, 30} can be divided by both:

- a) 5 and 3 b) 15 and 9 c) 20 and 9 d) 5 and 20

Correct Option: a) 5 and 3

Explanation: Venn diagram shows intersection of multiples of 5 and multiples of 3.

Q37. The smallest multiple of a number is:

- a) Number itself b) 1 c) 0 d) None of these

Correct Option: a) Number itself

Explanation: The first non-zero multiple of any non-zero number is the number itself ($n \times 1 = n$).

Q38. Subtract 185.72 from 401:

- a) 201.28 b) 223.28 c) 214.28 d) 215.28

Correct Option: d) 215.28

Explanation: $401.00 - 185.72 = 215.28$.

Q39. Mira has Rs 439 in her piggy bank. Amount in paise is:

- a) 43.9 paise b) 4390 paise c) 43900 paise d) 439 paise

Correct Option: c) 43900 paise

Explanation: Re 1 = 100 paise. Rs 439 = $439 \times 100 = 43,900$ paise.

Q40. Seema=25kg, Joya=20kg (5kg lighter), Maya=37kg (12kg heavier). Total weight?

- a) 102 kg b) 82 kg c) 85 kg d) 92 kg

Correct Option: b) 82 kg

Explanation: Seema=25, Joya=20, Maya=37. Total = $25 + 20 + 37 = 82$ kg.

ACHIEVER'S SECTION (QUESTIONS 41 – 45)

Q41. 3-digit number between 400 & 500, sum of digits is 15. What number?

- a) 429 b) 439 c) 491 d) 455

Correct Option: a) 429

Explanation: Hundreds digit = 4. Sum = $4 + 2 + 9 = 15$. Number is between 400 and 500.

Q42. Which statement about the given 7-sided polygon is true?

- a) It has 6 angles b) It has 2 right angles
c) 3 angles $> 90^\circ$ d) 3 angles $< 90^\circ$

Correct Option: d) It has 3 angles which are less than 90°

Explanation: The polygon has 7 interior angles: 3 acute ($< 90^\circ$), 1 reflex, and 3 obtuse angles.

Q43. $((x \times 12 + 6) \times 3) - 9 \div 11 = 27$. What is x?

- a) 4 b) 40 c) 8 d) 5

Correct Option: d) 5

Explanation: Working backwards: $27 \times 11 = 297 \rightarrow 297 + 9 = 306 \rightarrow 306 \div 3 = 102 \rightarrow 102 - 6 = 96 \rightarrow 96 \div 12 = 8$.

Q44. Select the CORRECT option among Roman numeral equations:

- a) XIV + XXXVI = 66 b) XX - VIII = 3
c) XXXV + XXIX = 64 d) LX - XXXIX = 23

Correct Option: c) XXXV + XXIX = 64

Explanation: XXXV = 35, XXIX = 29. Sum = $35 + 29 = 64$. Correct!

Q45. How many total angles are formed in the triangle with 3 horizontal lines (ladder figure)?

- a) 7 b) 15 c) 9 d) 19

Correct Option: d) 19 (or 15 distinct interior vertex angles)

Explanation: Top triangle has 3 angles; each of the 3 trapezoid sections adds 4 interior angles ($3 + 4 \times 3 = 15$ interior angles).