

Class 9 · Mathematics Olympiad

Total questions 50	Total marks 60	Time 60 minutes	Negative marking None
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Each question has four options, of which only one is correct. Mark your answer on the answer sheet. The Achievers Section carries higher marks per question. The answer key with full solutions is at the end of this paper.

This is original practice material written to the Level 1 pattern. It is not a past paper and is not affiliated with SOF or any official olympiad body.

Logical Reasoning

15 questions · 1 mark each · 15 marks

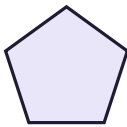
Q1. Five friends A, B, C, D and E sit in a row of five seats. A sits at the extreme left end, D sits at the extreme right end, C sits exactly in the middle and B sits between A and C. Who sits in the fourth seat from the left?

- (A) B (B) E (C) D (D) C

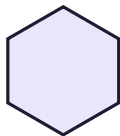
Q2. In the first row the numbers are 7, 9 and 66. In the second row they are 8, 8 and 67. In the third row they are 4, 2 and _____. The same rule applies to every row.

- (A) 11 (B) 10 (C) 12 (D) 13

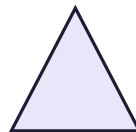
Q3. Which of these figures has exactly 3 lines of symmetry?



(A)



(B)



(C)



(D)

Q4. In a queue, Suresh is 12th from the front and 4th from the back. How many people are in the queue altogether?

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

Q5. Find the next number in the pattern: 2, 7, 17, 37, _____

- (A) 75 (B) 80 (C) 77 (D) 74

Q6. Which letter comes next? A, D, G, J, _____

- (A) N (B) L (C) M (D) P

Q7. In a row of 31 children, Imran is 25th from the left end. What is Imran's position from the right end?

- (A) 8th (B) 7th (C) 6th (D) 9th

Q8. Which letter comes next? G, I, L, P, _____

- (A) U (B) S (C) T (D) V

Q9. Find the odd one out: 18, 30, 52, 54, 66

- (A) 52 (B) 54 (C) 18 (D) 30

Q10. In a class, 21 students play cricket, 21 play football and 9 play both games. Every student plays at least one of the two. How many students are there in the class?

- (A) 34 (B) 24 (C) 42 (D) 33

Q11. If the 8th of a month is a Monday, what day of the week is the 25th of the same month?

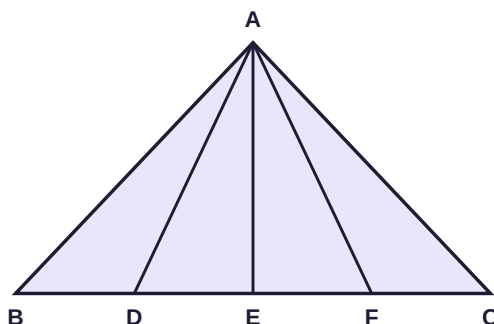
- (A) Saturday (B) Thursday (C) Wednesday (D) Friday

Q12. Read the statements and choose the conclusion that **MUST** be true.

All squares are rectangles. All rectangles have four sides.

- (A) No rectangle is a square. (B) Some squares have three sides.
(C) All squares have four sides. (D) All rectangles are squares.

Q13. How many triangles are there in the given figure?



- (A) 10 (B) 11 (C) 12 (D) 9

Q14. Three of the following four are alike and form a group. Which one does **NOT** belong?

- (A) Copper (B) Plastic (C) Silver (D) Iron

Q15. Which word would come **FIRST** in a dictionary?

- (A) minute (B) monkey (C) matter (D) museum

Mathematical Reasoning

20 questions · 1 mark each · 20 marks

Q16. $7,176 \div 24 = ?$

- (A) 309 (B) 289 (C) 299 (D) 300

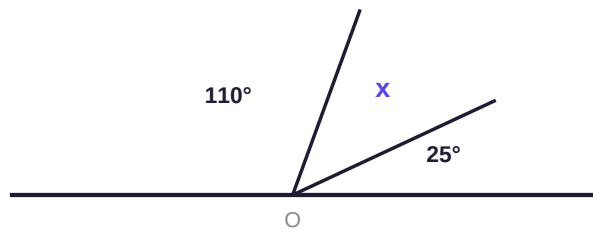
Q17. $787 \times 49 = ?$

- (A) 38,663 (B) 38,514 (C) 39,350 (D) 38,563

Q18. $8 \text{ L } 250 \text{ mL} \times 6 = ?$

- (A) 49 L 600 mL (B) 49 L 400 mL (C) 49 L 500 mL (D) 50 L 500 mL

Q19. In the given figure, find the value of x .



- (A) 55° (B) 35° (C) 70° (D) 45°

Q20. $4.0 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

- (A) 40 (B) 40,000 (C) 400 (D) 4,000

Q21. $30 - 17.42 = ?$

- (A) 12.58 (B) 13.58 (C) 12.68 (D) 12.48

Q22. Round 5,380 to the nearest thousand.

- (A) 6,000 (B) 5,000 (C) 4,000 (D) 5,400

Q23. $9 \text{ kg } 400 \text{ g} - 2 \text{ kg } 560 \text{ g} = ?$

- (A) 7 kg 840 g (B) 6 kg 840 g (C) 6 kg 940 g (D) 6 kg 780 g

Q24. Find the next number: 2, 6, 12, 20, 30, ____

- (A) 44 (B) 40 (C) 42 (D) 48

Q25. The perimeter of a square is 40 cm. What is its area?

- (A) 110 sq cm (B) 100 sq cm (C) 121 sq cm (D) 40 sq cm

Q26. What is the place value of 5 in the number 92,39,46,659?

- (A) 50 (B) 500 (C) 5 (D) 51

Q27. $2,64,448 - 59,348 = ?$

- (A) 2,15,100 (B) 2,05,100 (C) 2,05,090 (D) 2,05,200

Q28. What is the smallest number that can be divided exactly by both 6 and 10?

- (A) 60 (B) 40 (C) 20 (D) 30

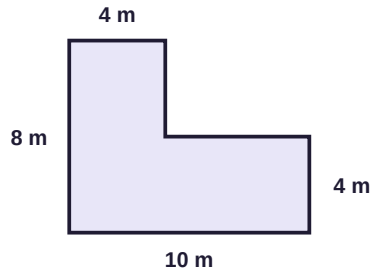
Q29. $\frac{1}{3} + \frac{2}{8} = ?$

- (A) $\frac{7}{12}$ (B) $1 \frac{1}{12}$ (C) $\frac{17}{24}$ (D) $\frac{1}{4}$

Q30. At 6 a.m. the temperature was 17°C . By noon it had risen by 12°C , and by night it had fallen by 10°C . What was the temperature at night?

- (A) 21°C (B) 19°C (C) 17°C (D) 29°C

Q31. The figure shows a plot of land. What is its area?



- (A) 60 sq m (B) 50 sq m (C) 56 sq m (D) 80 sq m

Q32. Which of these fractions is the greatest?

- (A) $\frac{7}{10}$ (B) $\frac{5}{8}$ (C) $\frac{7}{12}$ (D) $\frac{3}{4}$

Q33. $8,464 \div 16 = ?$

- (A) 539 (B) 529 (C) 530 (D) 519

Q34. $300 \times 50 = ?$

- (A) 15,300 (B) 15,100 (C) 15,000 (D) 14,950

Q35. $3 \text{ L } 250 \text{ mL} \times 2 = ?$

- (A) 6 L 500 mL (B) 6 L 600 mL (C) 6 L 400 mL (D) 7 L 500 mL

Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. One dozen pens cost ₹ 144. What is the cost of 4 pens?

- (A) ₹ 48 (B) ₹ 36 (C) ₹ 60 (D) ₹ 72

Q37. A book has 206 pages. Ritu reads 18 pages every day for 9 days. How many pages are still left?

- (A) 44 (B) 162 (C) 39 (D) 49

Q38. An auto charges ₹ 25 for the first kilometre and ₹ 12 for every kilometre after that. What is the fare for a journey of 8 km?

- (A) ₹ 110 (B) ₹ 97 (C) ₹ 109 (D) ₹ 121

Q39. A wall is 7 m long and 3 m high. How many square tiles of side 50 cm are needed to cover it completely?

- (A) 84 (B) 168 (C) 42 (D) 96

Q40. In a class of 16 students, $\frac{3}{4}$ are girls. How many boys are there?

- (A) 9 (B) 4 (C) 12 (D) -1

Q41. A shopkeeper sells 14 kg of rice at ₹ 64 per kg. How much money does he receive?

- (A) ₹ 996 (B) ₹ 896 (C) ₹ 910 (D) ₹ 796

Q42. A rope 6.4 m long is cut into pieces each 40 cm long. How many complete pieces are obtained?

- (A) 14 (B) 16 (C) 18 (D) 21

Q43. A water tank holds 250 litres. If $\frac{4}{5}$ of the water is used, how much water is left?

- (A) 25 L (B) 200 L (C) 75 L (D) 50 L

Q44. A train leaves at 8:25 a.m. and reaches its destination at 4:40 p.m. on the same day. How long is the journey?

- (A) 8 h 25 min (B) 8 h 15 min (C) 9 h 15 min (D) 7 h 15 min

Q45. One dozen pens cost ₹ 312. What is the cost of 5 pens?

- (A) ₹ 156 (B) ₹ 130 (C) ₹ 104 (D) ₹ 182

Achievers Section

5 questions · 3 marks each · 15 marks

Q46. Using each of the digits 0, 9, 7, 2 exactly once, what is the smallest 4-digit number that can be formed?

- (A) 2079 (B) 0279 (C) 9720 (D) 2088

Q47. 12 taps together fill a tank in 10 minutes. How long will 6 taps of the same kind take to fill it?

- (A) 17 minutes (B) 20 minutes (C) 23 minutes (D) 10 minutes

Q48. Find the next number: 5, 7, 11, 17, 25, ____

- (A) 33 (B) 37 (C) 35 (D) 36

Q49. How many numbers between 60 and 90 leave a remainder of 4 when divided by 8?

- (A) 4 (B) 2 (C) 5 (D) 3

Q50. Rahul finished the puzzle in two minutes and said it was 'to hit the nail on the head'. What did he mean?

- (A) to build a house (B) to hurt oneself
(C) to miss a chance (D) to say exactly the right thing

Answer Key

1	2	3	4	5	6	7	8	9	10
B	A	C	D	C	C	B	A	A	D
11	12	13	14	15	16	17	18	19	20
B	C	A	B	C	C	D	C	D	D
21	22	23	24	25	26	27	28	29	30
A	B	B	C	B	A	B	D	A	B
31	32	33	34	35	36	37	38	39	40
C	D	B	C	A	A	A	C	A	B
41	42	43	44	45	46	47	48	49	50
B	B	D	B	B	A	B	C	D	D

Solutions

Q1. (B) Seat 1 = A, seat 3 = C, seat 5 = D. B must be between A and C, so B takes seat 2, and the only friend left for seat 4 is E.

Q2. (A) The rule is: multiply the two numbers, then add 3. Check: 7, 9 gives 66 and 8, 8 gives 67; so 4, 2 gives 11.

Q3. (C) Counting lines of symmetry: regular pentagon has 5, regular hexagon has 6, equilateral triangle has 3, rectangle has 2. The answer is figure (C).

- Q4. (D) Counting Suresh only once: $12 + 4 - 1 = 15$ people.
- Q5. (C) Each number is doubled and 3 is added: $37 \times 2 + 3 = 77$.
- Q6. (C) Each letter moves 3 place(s) forward in the alphabet, so after J comes M.
- Q7. (B) Position from the right = total - position from the left + 1 = $31 - 25 + 1 = 7$ th.
- Q8. (A) The gaps grow by one each time (+2, +3, +4, +5), so after P the next letter is U.
- Q9. (A) Every other number is a multiple of 6. 52 is not.
- Q10. (D) $21 + 21 - 9 = 33$. The 9 who play both were counted twice, so they are subtracted once.
- Q11. (B) 17 days later is 2 week(s) and 3 day(s), so the day moves 3 place(s) on from Monday to Thursday.
- Q12. (C) From "All squares are rectangles. All rectangles have four sides." it follows necessarily that all squares have four sides.
- Q13. (A) Every triangle has apex A and two of the 5 base points as its other corners. Choosing 2 from 5 gives 10 triangles.
- Q14. (B) Copper, Silver, Iron are all metals; Plastic is not.
- Q15. (C) In alphabetical order the words run matter, minute, monkey, museum, so matter comes first.
- Q16. (C) $24 \times 299 = 7,176$, so the quotient is 299.
- Q17. (D) $787 \times 49 = 787 \times 40 + 787 \times 9 = 31,480 + 7,083 = 38,563$.
- Q18. (C) 8 L 250 mL = 8,250 mL. $8,250 \times 6 = 49,500$ mL = 49 L 500 mL.
- Q19. (D) The three angles lie on a straight line, so they add to 180° . $x = 180^\circ - 110^\circ - 25^\circ = 45^\circ$.
- Q20. (D) 1 km = 1,000 m, so $4.0 \text{ km} = 4.0 \times 1,000 = 4,000$ m.
- Q21. (A) Write 30 as 30.00, then $30.00 - 17.42 = 12.58$.
- Q22. (B) The hundreds digit is 3, so we round down to 5,000.
- Q23. (B) 9 kg 400 g = 9,400 g and 2 kg 560 g = 2,560 g. $9,400 - 2,560 = 6,840$ g = 6 kg 840 g.
- Q24. (C) The gaps are 4, 6, 8, 10, so the next gap is 12 and $30 + 12 = 42$.
- Q25. (B) Side = $40 / 4 = 10$ cm, so area = $10 \times 10 = 100$ sq cm.
- Q26. (A) The digit 5 stands in the 10 place, so its place value is 50.
- Q27. (B) $2,64,448 - 59,348 = 2,05,100$.
- Q28. (D) Listing multiples of 6 and of 10, the first number that appears in both lists is 30.
- Q29. (A) Make the denominators the same (24): $1/3 = 8/24$ and $2/8 = 6/24$. Adding gives $14/24 = 7/12$.
- Q30. (B) $17 + 12 = 29$, then $29 - 10 = 19^\circ\text{C}$.
- Q31. (C) The missing corner is $(10 - 4) = 6$ m wide and $(8 - 4) = 4$ m tall. Take the full rectangle $10 \text{ m} \times 8 \text{ m} = 80$ sq m and subtract that corner, $6 \text{ m} \times 4 \text{ m} = 24$ sq m. $80 - 24 = 56$ sq m.
- Q32. (D) As decimals: $3/4 = 0.750$, $5/8 = 0.625$, $7/12 = 0.583$, $7/10 = 0.700$. The greatest is $3/4$.
- Q33. (B) $16 \times 529 = 8,464$, so the quotient is 529.
- Q34. (C) $300 \times 50 = 300 \times 50 + 300 \times 0 = 15,000 + 0 = 15,000$.
- Q35. (A) 3 L 250 mL = 3,250 mL. $3,250 \times 2 = 6,500$ mL = 6 L 500 mL.
- Q36. (A) One pen costs $144 / 12 = ₹ 12$, so 4 pens cost $4 \times 12 = ₹ 48$.
- Q37. (A) She reads $18 \times 9 = 162$ pages, so $206 - 162 = 44$ pages are left.
- Q38. (C) After the first kilometre there are 7 more: $25 + 7 \times 12 = ₹ 109$.
- Q39. (A) The wall is $700 \text{ cm} \times 300 \text{ cm} = 2,10,000$ sq cm. Each tile is $50 \times 50 = 2,500$ sq cm. $2,10,000 / 2,500 = 84$ tiles.
- Q40. (B) $3/4$ of 16 = 12 girls, so the number of boys is $16 - 12 = 4$.
- Q41. (B) $14 \times 64 = ₹ 896$.
- Q42. (B) $6.4 \text{ m} = 640 \text{ cm}$ and $640 / 40 = 16$ pieces.
- Q43. (D) $4/5$ of 250 = 200 L is used, so $250 - 200 = 50$ L is left.

Q44. (B) From 8:25 a.m. to 4:40 p.m. is 8 h 15 min.

Q45. (B) One pen costs $312 / 12 = ₹ 26$, so 5 pens cost $5 \times 26 = ₹ 130$.

Q46. (A) A 4-digit number cannot begin with 0, so the smallest possible first digit is 2. The remaining digits are then placed in increasing order: 2079.

Q47. (B) One tap alone would take $12 \times 10 = 120$ minutes. With 6 taps the time is $120 / 6 = 20$ minutes.

Q48. (C) The gaps grow 2, 4, 6, 8, so the next gap is 10 and $25 + 10 = 35$.

Q49. (D) The numbers are 68, 76, 84 — 3 of them.

Q50. (D) In this sentence 'to hit the nail on the head' means to say exactly the right thing.

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