

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. In a row of 38 children, Imran is 30th from the left end. What is Imran's position from the right end?

- (A) 9th (B) 11th (C) 10th (D) 8th

Q2. Read the statements and choose the conclusion that **MUST** be true.

All metals conduct electricity. Copper is a metal.

- (A) Copper does not conduct electricity. (B) Only copper is a metal.
(C) All conductors are copper. (D) Copper conducts electricity.

Q3. In the first row the numbers are 9, 8 and 70. In the second row they are 8, 3 and 22. In the third row they are 8, 6 and ____ . The same rule applies to every row.

- (A) 45 (B) 48 (C) 46 (D) 47

Q4. Ravi walks 9 m north, then 8 m east, then 2 m south. Where is Ravi now, relative to the starting point?

- (A) 9 m north and 8 m east (B) 8 m north and 8 m east
(C) 7 m north and 8 m east (D) 7 m north and 9 m east

Q5. 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) D (B) B (C) E (D) C

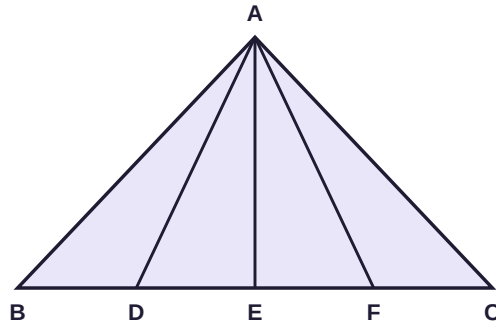
Q6. Which letter comes next? D, F, H, J, ____

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

Q7. If the 10th of a month is a Sunday, what day of the week is the 21th of the same month?

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

Q8. How many triangles are there in the given figure?



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

Q9. Hunger : Food :: Thirst : ____

- (A) Shade (B) Air (C) Water (D) Sleep

Q10. Count backward in 5s: 60, 55, 50, 45, ____

- (A) 41 (B) 40 (C) 45 (D) 35

Q11. In a certain code BUS is written as DWU. How is PEN written in that code?

- (A) NCL (B) RGP (C) SHQ (D) PGR

Q12. Find the next number in the pattern: 5, 10, 15, 20, ____

- (A) 20 (B) 25 (C) 30 (D) 26

Q13. Which letter comes next? B, D, G, K, ____

- (A) O (B) N (C) Q (D) P

Q14. Find the next number in the pattern: 3, 8, 18, 38, ____

- (A) 80 (B) 79 (C) 76 (D) 78

Q15. Which one does NOT belong with the others?

- (A) August (B) March (C) April (D) January

Mathematical Reasoning

20 questions · 1 mark each · 20 marks

Q16. What is the place value of 8 in the number 10,08,55,452?

- (A) 8,00,000 (B) 80,00,000 (C) 8 (D) 80,000

Q17. Which of these fractions is the greatest?

- (A) $\frac{4}{7}$ (B) $\frac{3}{5}$ (C) $\frac{5}{8}$ (D) $\frac{5}{6}$

Q18. 5 kg 450 g - 2 kg 80 g = ?

- (A) 4 kg 370 g (B) 3 kg 470 g (C) 3 kg 370 g (D) 3 kg 310 g

Q19. $1,460 \div 4 = ?$

- (A) 366 (B) 355 (C) 375 (D) 365

Q20. Round 14,092 to the nearest thousand.

- (A) 13,000 (B) 14,100 (C) 15,000 (D) 14,000

Q21. $614 \times 26 = ?$

- (A) 15,964 (B) 15,938 (C) 16,064 (D) 16,578

Q22. $5 \text{ L } 950 \text{ mL} \times 6 = ?$

- (A) 35 L 700 mL (B) 36 L 700 mL (C) 35 L 800 mL (D) 35 L 600 mL

Q23. $3,36,827 - 1,06,388 = ?$

- (A) 2,30,439 (B) 2,30,539 (C) 2,40,439 (D) 2,30,429

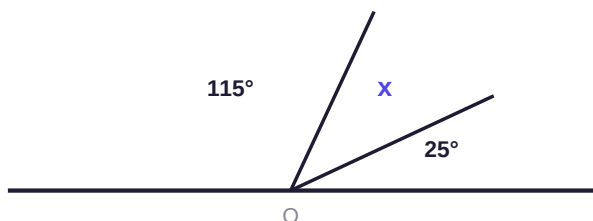
Q24. Find the next number: 2, 6, 12, 20, 30, ____

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

Q25. What is the smallest number that can be divided exactly by both 4 and 10?

- (A) 30 (B) 16 (C) 24 (D) 20

Q26. In the given figure, find the value of x.

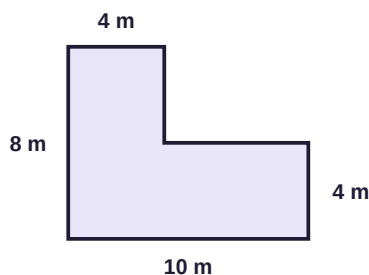


- (A) 50° (B) 65° (C) 30° (D) 40°

Q27. At 6 a.m. the temperature was 21°C . By noon it had risen by 5°C , and by night it had fallen by 4°C . What was the temperature at night?

- (A) 20°C (B) 24°C (C) 22°C (D) 26°C

Q28. The figure shows a plot of land. What is its area?



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

Q29. $51 - 48.77 = ?$

- (A) 2.13 (B) 2.23 (C) 2.33 (D) 3.23

Q30. $9.6 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

- (A) 9,600 (B) 960 (C) 96 (D) 96,000

Q31. $\frac{3}{5} + \frac{9}{12} = ?$

- (A) $1 \frac{17}{20}$ (B) $1 \frac{7}{20}$ (C) $1 \frac{3}{20}$ (D) $1 \frac{13}{30}$

Q32. The perimeter of a square is 52 cm. What is its area?

- (A) 196 sq cm (B) 52 sq cm (C) 182 sq cm (D) 169 sq cm

Q33. What is the place value of 6 in the number 24,61,17,818?

- (A) 60,00,000 (B) 6,00,000 (C) 6 (D) 6,00,00,000

Q34. $4 \text{ kg } 300 \text{ g} - 2 \text{ kg } 720 \text{ g} = ?$

- (A) 1 kg 580 g (B) 1 kg 680 g (C) 2 kg 580 g (D) 1 kg 520 g

Q35. $3,740 \div 34 = ?$

- (A) 120 (B) 110 (C) 111 (D) 100

Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. One dozen pens cost ₹ 72. What is the cost of 8 pens?

- (A) ₹ 54 (B) ₹ 42 (C) ₹ 60 (D) ₹ 48

Q37. A train leaves at 5:20 a.m. and reaches its destination at 12:31 p.m. on the same day. How long is the journey?

- (A) 7 h 21 min (B) 8 h 11 min (C) 7 h 11 min (D) 6 h 11 min

Q38. A rope 17.25 m long is cut into pieces each 75 cm long. How many complete pieces are obtained?

- (A) 21 (B) 23 (C) 28 (D) 25

Q39. A water tank holds 240 litres. If $\frac{4}{5}$ of the water is used, how much water is left?

- (A) 192 L (B) 23 L (C) 48 L (D) 73 L

Q40. A book has 180 pages. Ritu reads 28 pages every day for 6 days. How many pages are still left?

- (A) 17 (B) 12 (C) 168 (D) 7

Q41. A shopkeeper sells 9 kg of rice at ₹ 62 per kg. How much money does he receive?

- (A) ₹ 458 (B) ₹ 558 (C) ₹ 567 (D) ₹ 658

Q42. In a class of 72 students, $\frac{1}{8}$ are girls. How many boys are there?

- (A) 68 (B) 58 (C) 9 (D) 63

Q43. A wall is 4 m long and 3 m high. How many square tiles of side 25 cm are needed to cover it completely?

- (A) 204 (B) 384 (C) 192 (D) 96

Q44. An auto charges ₹ 25 for the first kilometre and ₹ 12 for every kilometre after that. What is the fare for a journey of 5 km?

- (A) ₹ 85 (B) ₹ 74 (C) ₹ 61 (D) ₹ 73

Q45. One dozen pens cost ₹ 108. What is the cost of 4 pens?

- (A) ₹ 54 (B) ₹ 36 (C) ₹ 27 (D) ₹ 45

Achievers Section

5 questions · 3 marks each · 15 marks

Q46. How many numbers between 40 and 65 leave a remainder of 7 when divided by 9?

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

Q47. Find the next number: 1, 3, 7, 13, 21, ____

(A) 29

(B) 31

(C) 33

(D) 32

Q48. A boy pushes a heavy box but it does not move. Which force is stopping it?

(A) Buoyancy

(B) Friction

(C) Magnetism

(D) Gravity

Q49. If LAMP is coded as NCOR, how is MILK coded?

(A) MNKO

(B) QMPO

(C) KGJI

(D) OKNM

Q50. Rahul finished the puzzle in two minutes and said it was 'once in a blue moon'. What did he mean?

(A) very often

(B) every night

(C) at sunrise

(D) very rarely

Answer Key

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

Solutions

Q1. (A) Position from the right = total - position from the left + 1 = 38 - 30 + 1 = 9th.

Q2. (D) From "All metals conduct electricity. Copper is a metal." it follows necessarily that copper conducts electricity.

Q3. (C) The rule is: multiply the two numbers, then subtract 2. Check: 9, 8 gives 70 and 8, 3 gives 22; so 8, 6 gives 46.

Q4. (C) The 2 m south cancels part of the 9 m north, leaving 9 - 2 = 7 m north, and the 8 m east is unchanged. So Ravi is 7 m north and 8 m east.

Q5. (C) 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.

Q6. (C) Each letter moves 2 place(s) forward in the alphabet, so after J comes L.

Q7. (D) 11 days later is 1 week(s) and 4 day(s), so the day moves 4 place(s) on from Sunday to Thursday.

Q8. (A) Every triangle has apex A and two of the 5 base points as its other corners. Choosing 2 from 5 gives 10 triangles.

Q9. (C) The second word relates to the first in the same way Water relates to Thirst.

Q10. (B) Subtracting 5 from 45 gives 40.

Q11. (B) Each letter moves 2 place(s) forward in the alphabet, so PEN becomes RGP.

Q12. (B) Each number is 5 more than the one before it, so the next is 20 + 5 = 25.

Q13. (D) The gaps grow by one each time (+2, +3, +4, +5), so after K the next letter is P.

Q14. (D) Each number is doubled and 2 is added: $38 \times 2 + 2 = 78$.

- Q15. (C) April has 30 days while the others have 31.
- Q16. (A) The digit 8 stands in the 1,00,000 place, so its place value is 8,00,000.
- Q17. (D) As decimals: $\frac{5}{8} = 0.625$, $\frac{5}{6} = 0.833$, $\frac{3}{5} = 0.600$, $\frac{4}{7} = 0.571$. The greatest is $\frac{5}{6}$.
- Q18. (C) 5 kg 450 g = 5,450 g and 2 kg 80 g = 2,080 g. $5,450 - 2,080 = 3,370$ g = 3 kg 370 g.
- Q19. (D) $4 \times 365 = 1,460$, so the quotient is 365.
- Q20. (D) The hundreds digit is 0, so we round down to 14,000.
- Q21. (A) $614 \times 26 = 614 \times 20 + 614 \times 6 = 12,280 + 3,684 = 15,964$.
- Q22. (A) 5 L 950 mL = 5,950 mL. $5,950 \times 6 = 35,700$ mL = 35 L 700 mL.
- Q23. (A) $3,36,827 - 1,06,388 = 2,30,439$.
- Q24. (B) The gaps are 4, 6, 8, 10, so the next gap is 12 and $30 + 12 = 42$.
- Q25. (D) Listing multiples of 4 and of 10, the first number that appears in both lists is 20.
- Q26. (D) The three angles lie on a straight line, so they add to 180° . $x = 180^\circ - 115^\circ - 25^\circ = 40^\circ$.
- Q27. (C) $21 + 5 = 26$, then $26 - 4 = 22^\circ\text{C}$.
- Q28. (D) 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.
- Q29. (B) Write 51 as 51.00, then $51.00 - 48.77 = 2.23$.
- Q30. (A) 1 km = 1,000 m, so $9.6 \text{ km} = 9.6 \times 1,000 = 9,600$ m.
- Q31. (B) Make the denominators the same (60): $\frac{3}{5} = \frac{36}{60}$ and $\frac{9}{12} = \frac{45}{60}$. Adding gives $\frac{81}{60} = 1 \frac{7}{20}$.
- Q32. (D) Side = $52 / 4 = 13$ cm, so area = $13 \times 13 = 169$ sq cm.
- Q33. (A) The digit 6 stands in the 10,00,000 place, so its place value is 60,00,000.
- Q34. (A) 4 kg 300 g = 4,300 g and 2 kg 720 g = 2,720 g. $4,300 - 2,720 = 1,580$ g = 1 kg 580 g.
- Q35. (B) $34 \times 110 = 3,740$, so the quotient is 110.
- Q36. (D) One pen costs $72 / 12 = ₹ 6$, so 8 pens cost $8 \times 6 = ₹ 48$.
- Q37. (C) From 5:20 a.m. to 12:31 p.m. is 7 h 11 min.
- Q38. (B) $17.25 \text{ m} = 1,725$ cm and $1,725 / 75 = 23$ pieces.
- Q39. (C) $\frac{4}{5}$ of 240 = 192 L is used, so $240 - 192 = 48$ L is left.
- Q40. (B) She reads $28 \times 6 = 168$ pages, so $180 - 168 = 12$ pages are left.
- Q41. (B) $9 \times 62 = ₹ 558$.
- Q42. (D) $\frac{1}{8}$ of 72 = 9 girls, so the number of boys is $72 - 9 = 63$.
- Q43. (C) The wall is $400 \text{ cm} \times 300 \text{ cm} = 1,20,000$ sq cm. Each tile is $25 \times 25 = 625$ sq cm. $1,20,000 / 625 = 192$ tiles.
- Q44. (D) After the first kilometre there are 4 more: $25 + 4 \times 12 = ₹ 73$.
- Q45. (B) One pen costs $108 / 12 = ₹ 9$, so 4 pens cost $4 \times 9 = ₹ 36$.
- Q46. (B) The numbers are 43, 52, 61 — 3 of them.
- Q47. (B) The gaps grow 2, 4, 6, 8, so the next gap is 10 and $21 + 10 = 31$.
- Q48. (B) Friction between the box and the floor opposes the push.
- Q49. (D) Every letter moves 2 place(s) forward, so MILK becomes OKNM.
- Q50. (D) In this sentence 'once in a blue moon' means very rarely.