

Class 8 · 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. Nila walks 8 m north, then 9 m east, then 4 m south. Where is Nila now, relative to the starting point?

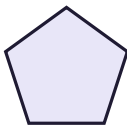
- (A) 8 m north and 9 m east (B) 5 m north and 9 m east
(C) 4 m north and 9 m east (D) 4 m north and 10 m east

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

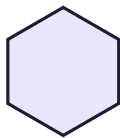
All squares are rectangles. All rectangles have four sides.

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

Q3. Which of these figures has exactly 4 lines of symmetry?



(A)



(B)



(C)



(D)

Q4. If TIN is written as 20 - 9 - 14 using the positions of the letters in the alphabet, how is CUP written?

- (A) 3 - 21 - 16 (B) 24 - 6 - 11 (C) 16 - 21 - 3 (D) 4 - 22 - 17

Q5. Which one does **NOT** belong with the others?

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

Q6. In a queue, Farah is 9th from the front and 10th from the back. How many people are in the queue altogether?

- (A) 19 (B) 20 (C) 17 (D) 18

Q7. Find the next number in the pattern: 5, 12, 26, 54, ____

- (A) 112 (B) 110 (C) 108 (D) 111

Q8. Which word would come **FIRST** in a dictionary?

- (A) mother (B) minute (C) melon (D) monkey

Q9. Kabir walks 9 m towards north, turns right and walks 4 m, then turns right again and walks 9 m. How far is Kabir from the starting point, and in which direction?

- (A) 4 m, West (B) 9 m, East (C) 4 m, East (D) 13 m, North

Q10. $4 : 16 :: 9 : \underline{\hspace{1cm}}$

- (A) 100 (B) 64 (C) 18 (D) 81

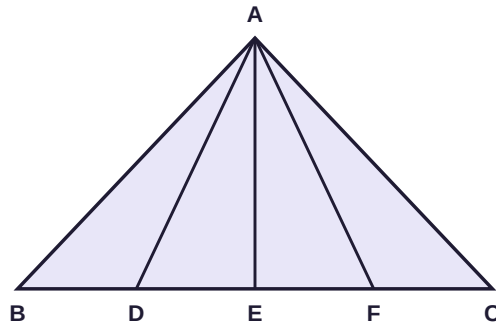
Q11. Pointing to a boy in a photograph, Meera said, "He is the son of my paternal grandfather's only son." How is the boy related to Meera?

- (A) Nephew (B) Cousin (C) Brother (D) Uncle

Q12. In a row of 26 children, Arjun is 14th from the left end. What is Arjun's position from the right end?

- (A) 12th (B) 13th (C) 15th (D) 14th

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



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

Q14. Find the next number in the pattern: 16, 20, 24, 28, ____

- (A) 28 (B) 32 (C) 36 (D) 33

Q15. In a class, 15 students play cricket, 13 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) 10 (B) 19 (C) 28 (D) 20

Mathematical Reasoning

20 questions · 1 mark each · 20 marks

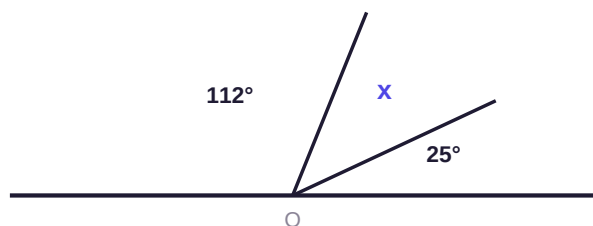
Q16. $67 - 44.44 = ?$

- (A) 22.66 (B) 23.56 (C) 22.46 (D) 22.56

Q17. What is the place value of 9 in the number 4,06,31,947?

- (A) 900 (B) 9 (C) 90 (D) 9,000

Q18. In the given figure, find the value of x.



- (A) 33° (B) 43° (C) 53° (D) 68°

Q19. $5,530 \div 14 = ?$

- (A) 395 (B) 405 (C) 396 (D) 385

Q20. $428 \times 17 = ?$

- (A) 7,276 (B) 7,376 (C) 7,259 (D) 7,704

Q21. Round 1,478 to the nearest thousand.

- (A) 1,000 (B) 2,000 (C) 1,500 (D) 0

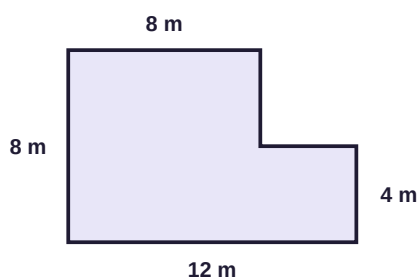
Q22. 5.0 km = _____ m

- (A) 500 (B) 50,000 (C) 50 (D) 5,000

Q23. 2 L 450 mL $\times 4 = ?$

- (A) 10 L 800 mL (B) 9 L 900 mL (C) 9 L 800 mL (D) 9 L 700 mL

Q24. The figure shows a plot of land. What is its area?



- (A) 80 sq m (B) 84 sq m (C) 76 sq m (D) 96 sq m

Q25. 3 kg 400 g - 2 kg 360 g = ?

- (A) 2 kg 40 g (B) 0 kg 980 g (C) 1 kg 140 g (D) 1 kg 40 g

Q26. $\frac{2}{5} + \frac{6}{12} = ?$

- (A) $\frac{9}{10}$ (B) $\frac{7}{10}$ (C) $1\frac{2}{5}$ (D) $\frac{59}{60}$

Q27. At 6 a.m. the temperature was 23°C . By noon it had risen by 12°C , and by night it had fallen by 4°C . What was the temperature at night?

- (A) 31°C (B) 35°C (C) 29°C (D) 33°C

Q28. Which of these fractions is the greatest?

- (A) $\frac{4}{7}$ (B) $\frac{3}{4}$ (C) $\frac{7}{10}$ (D) $\frac{5}{6}$

Q29. What is the smallest number that can be divided exactly by both 12 and 18?

- (A) 48 (B) 216 (C) 36 (D) 24

Q30. The perimeter of a square is 28 cm. What is its area?

- (A) 64 sq cm (B) 49 sq cm (C) 56 sq cm (D) 28 sq cm

Q31. Find the next number: 2, 6, 12, 20, 30, ____

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

Q32. $2,27,681 - 60,868 = ?$

- (A) 1,66,913 (B) 1,66,813 (C) 1,76,813 (D) 1,66,803

Q33. $25 - 8.74 = ?$

- (A) 16.16 (B) 17.26 (C) 16.26 (D) 16.36

Q34. What is the place value of 9 in the number 5,96,16,522?

- (A) 9 (B) 9,00,000 (C) 9,00,00,000 (D) 90,00,000

Q35. $5,346 \div 27 = ?$

- (A) 198 (B) 199 (C) 188 (D) 208

Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. An auto charges ₹ 30 for the first kilometre and ₹ 10 for every kilometre after that. What is the fare for a journey of 12 km?

- (A) ₹ 150 (B) ₹ 130 (C) ₹ 140 (D) ₹ 141

Q37. A shopkeeper sells 20 kg of rice at ₹ 81 per kg. How much money does he receive?

- (A) ₹ 1,720 (B) ₹ 1,520 (C) ₹ 1,640 (D) ₹ 1,620

Q38. A train leaves at 5:10 a.m. and reaches its destination at 8:46 a.m. on the same day. How long is the journey?

- (A) 2 h 36 min (B) 4 h 36 min (C) 3 h 46 min (D) 3 h 36 min

Q39. In a class of 24 students, $\frac{3}{4}$ are girls. How many boys are there?

- (A) 6 (B) 11 (C) 18 (D) 1

Q40. A rope 7.2 m long is cut into pieces each 80 cm long. How many complete pieces are obtained?

- (A) 7 (B) 14 (C) 11 (D) 9

Q41. A water tank holds 200 litres. If $\frac{1}{4}$ of the water is used, how much water is left?

- (A) 150 L (B) 50 L (C) 125 L (D) 175 L

Q42. A book has 198 pages. Ritu reads 26 pages every day for 6 days. How many pages are still left?

- (A) 37 (B) 42 (C) 156 (D) 47

Q43. A wall is 4 m long and 2 m high. How many square tiles of side 20 cm are needed to cover it completely?

- (A) 200 (B) 100 (C) 212 (D) 400

Q44. One dozen pens cost ₹ 120. What is the cost of 7 pens?

- (A) ₹ 70 (B) ₹ 80 (C) ₹ 90 (D) ₹ 60

Q45. An auto charges ₹ 30 for the first kilometre and ₹ 12 for every kilometre after that. What is the fare for a journey of 5 km?

- (A) ₹ 90 (B) ₹ 78 (C) ₹ 66 (D) ₹ 79

Achievers Section

5 questions · 3 marks each · 15 marks

Q46. The clock in the figure shows 9:30. What is the angle between the hour hand and the minute hand?



- (A) 135° (B) 120° (C) 90° (D) 105°

Q47. 2 taps together fill a tank in 25 minutes. How long will 5 taps of the same kind take to fill it?

- (A) 25 minutes (B) 10 minutes (C) 7 minutes (D) 13 minutes

Q48. A river rises in the Himalayas, flows east across northern India and forms the world's largest delta before reaching the Bay of Bengal. Which river is it?

- (A) The Godavari (B) The Ganga (C) The Krishna (D) The Narmada

Q49. If FISH is coded as KNXM, how is GATE coded?

- (A) QKDO (B) JYFL (C) BVOZ (D) LFYJ

Q50. The average of 4 numbers is 28. 3 of them are 10, 59, 34. What is the remaining number?

- (A) 11 (B) 7 (C) 9 (D) 28

Answer Key

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

Solutions

Q1. (C) The 4 m south cancels part of the 8 m north, leaving $8 - 4 = 4$ m north, and the 9 m east is unchanged. So Nila is 4 m north and 9 m east.

Q2. (B) From "All squares are rectangles. All rectangles have four sides." it follows necessarily that all squares have four sides.

- Q3. (D) Counting lines of symmetry: regular pentagon has 5, regular hexagon has 6, rectangle has 2, square has 4. The answer is figure (D).
- Q4. (A) C is letter 3 and U is letter 21 and P is letter 16, so $CUP = 3 + 21 + 16$.
- Q5. (B) April has 30 days while the others have 31.
- Q6. (D) Counting Farah only once: $9 + 10 - 1 = 18$ people.
- Q7. (B) Each number is doubled and 2 is added: $54 \times 2 + 2 = 110$.
- Q8. (C) In alphabetical order the words run melon, minute, monkey, mother, so melon comes first.
- Q9. (C) The two 9 m walks (north, then south) cancel out, leaving only the 4 m walked towards the east. So the answer is 4 m, East.
- Q10. (D) The second number is the first multiplied by itself: $4 \times 4 = 16$, so $9 \times 9 = 81$.
- Q11. (C) Meera's paternal grandfather's only son is Meera's own father, so that man's son is Meera's own sibling. The answer is Brother.
- Q12. (B) Position from the right = total - position from the left + 1 = $26 - 14 + 1 = 13$ th.
- 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) Each number is 4 more than the one before it, so the next is $28 + 4 = 32$.
- Q15. (B) $15 + 13 - 9 = 19$. The 9 who play both were counted twice, so they are subtracted once.
- Q16. (D) Write 67 as 67.00, then $67.00 - 44.44 = 22.56$.
- Q17. (A) The digit 9 stands in the 100 place, so its place value is 900.
- Q18. (B) The three angles lie on a straight line, so they add to 180° . $x = 180^\circ - 112^\circ - 25^\circ = 43^\circ$.
- Q19. (A) $14 \times 395 = 5,530$, so the quotient is 395.
- Q20. (A) $428 \times 17 = 428 \times 10 + 428 \times 7 = 4,280 + 2,996 = 7,276$.
- Q21. (A) The hundreds digit is 4, so we round down to 1,000.
- Q22. (D) $1 \text{ km} = 1,000 \text{ m}$, so $5.0 \text{ km} = 5.0 \times 1,000 = 5,000 \text{ m}$.
- Q23. (C) $2 \text{ L } 450 \text{ mL} = 2,450 \text{ mL}$. $2,450 \times 4 = 9,800 \text{ mL} = 9 \text{ L } 800 \text{ mL}$.
- Q24. (A) The missing corner is $(12 - 8) = 4 \text{ m}$ wide and $(8 - 4) = 4 \text{ m}$ tall. Take the full rectangle $12 \text{ m} \times 8 \text{ m} = 96 \text{ sq m}$ and subtract that corner, $4 \text{ m} \times 4 \text{ m} = 16 \text{ sq m}$. $96 - 16 = 80 \text{ sq m}$.
- Q25. (D) $3 \text{ kg } 400 \text{ g} = 3,400 \text{ g}$ and $2 \text{ kg } 360 \text{ g} = 2,360 \text{ g}$. $3,400 - 2,360 = 1,040 \text{ g} = 1 \text{ kg } 40 \text{ g}$.
- Q26. (A) Make the denominators the same (60): $2/5 = 24/60$ and $6/12 = 30/60$. Adding gives $54/60 = 9/10$.
- Q27. (A) $23 + 12 = 35$, then $35 - 4 = 31^\circ\text{C}$.
- Q28. (D) As decimals: $5/6 = 0.833$, $7/10 = 0.700$, $3/4 = 0.750$, $4/7 = 0.571$. The greatest is $5/6$.
- Q29. (C) Listing multiples of 12 and of 18, the first number that appears in both lists is 36.
- Q30. (B) Side = $28 / 4 = 7 \text{ cm}$, so area = $7 \times 7 = 49 \text{ sq cm}$.
- Q31. (B) The gaps are 4, 6, 8, 10, so the next gap is 12 and $30 + 12 = 42$.
- Q32. (B) $2,27,681 - 60,868 = 1,66,813$.
- Q33. (C) Write 25 as 25.00, then $25.00 - 8.74 = 16.26$.
- Q34. (D) The digit 9 stands in the 10,00,000 place, so its place value is 90,00,000.
- Q35. (A) $27 \times 198 = 5,346$, so the quotient is 198.
- Q36. (C) After the first kilometre there are 11 more: $30 + 11 \times 10 = ₹ 140$.
- Q37. (D) $20 \times 81 = ₹ 1,620$.
- Q38. (D) From 5:10 a.m. to 8:46 a.m. is 3 h 36 min.
- Q39. (A) $3/4$ of 24 = 18 girls, so the number of boys is $24 - 18 = 6$.
- Q40. (D) $7.2 \text{ m} = 720 \text{ cm}$ and $720 / 80 = 9$ pieces.
- Q41. (A) $1/4$ of 200 = 50 L is used, so $200 - 50 = 150 \text{ L}$ is left.

- Q42. (B) She reads $26 \times 6 = 156$ pages, so $198 - 156 = 42$ pages are left.
- Q43. (A) The wall is $400 \text{ cm} \times 200 \text{ cm} = 80,000 \text{ sq cm}$. Each tile is $20 \times 20 = 400 \text{ sq cm}$. $80,000 / 400 = 200$ tiles.
- Q44. (A) One pen costs $120 / 12 = ₹ 10$, so 7 pens cost $7 \times 10 = ₹ 70$.
- Q45. (B) After the first kilometre there are 4 more: $30 + 4 \times 12 = ₹ 78$.
- Q46. (D) The minute hand is at 180° from 12 and the hour hand at 285° from 12, so the angle between them is 105° .
- Q47. (B) One tap alone would take $2 \times 25 = 50$ minutes. With 5 taps the time is $50 / 5 = 10$ minutes.
- Q48. (B) The Ganga flows east and forms the Sundarbans delta at the Bay of Bengal.
- Q49. (D) Every letter moves 5 place(s) forward, so GATE becomes LFYJ.
- Q50. (C) The 4 numbers add up to $28 \times 4 = 112$. The given numbers add up to 103, so the missing number is $112 - 103 = 9$.

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