

Class 7 · 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. Three of the following four are alike and form a group. Which one does NOT belong?

- (A) Apple (B) Mango (C) Carrot (D) Banana

Q2. In a class, 21 students play cricket, 16 play football and 8 play both games. Every student plays at least one of the two. How many students are there in the class?

- (A) 30 (B) 21 (C) 37 (D) 29

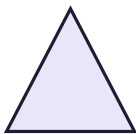
Q3. Five friends A, B, C, D and E sit in a row of five seats. A sits at the extreme left end, D sits at the extreme right end, C sits exactly in the middle and B sits between A and C. Who sits in the fourth seat from the left?

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

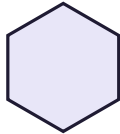
Q4. Which word would come FIRST in a dictionary?

- (A) monkey (B) marble (C) maple (D) museum

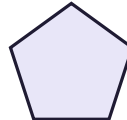
Q5. Which of these figures has exactly 3 lines of symmetry?



(A)



(B)



(C)



(D)

Q6. A father is 20 years older than his son. The son is 16 years old now. How old will the father be after 3 years?

- (A) 40 years (B) 42 years (C) 39 years (D) 36 years

Q7. Count backward in 5s: 65, 60, 55, 50, ____

- (A) 46 (B) 50 (C) 40 (D) 45

Q8. Which letter comes next? B, D, G, K, ____

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

Q9. In a queue, Deep is 8th from the front and 10th from the back. How many people are in the queue altogether?

- (A) 18 (B) 17 (C) 19 (D) 16

Q10. 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) All conductors are copper.
(C) Only copper is a metal. (D) Copper conducts electricity.

Q11. Eye : See :: Ear : ____

- (A) Touch (B) Hear (C) Smell (D) Taste

Q12. If the 12th of a month is a Thursday, what day of the week is the 28th of the same month?

- (A) Monday (B) Friday (C) Saturday (D) Sunday

Q13. In a row of 34 children, Sana is 14th from the left end. What is Sana's position from the right end?

- (A) 22th (B) 20th (C) 21th (D) 23th

Q14. Which one does **NOT** belong with the others?

- (A) Silver (B) Wood (C) Gold (D) Copper

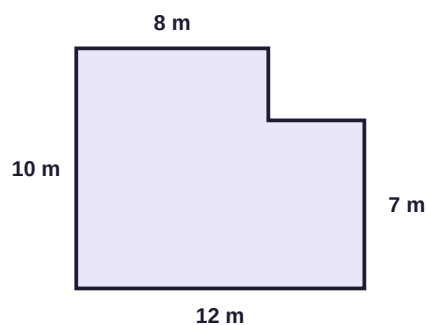
Q15. Pointing to a boy in a photograph, Anjali said, "He is the son of my paternal grandfather's only son." How is the boy related to Anjali?

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

Mathematical Reasoning

20 questions · 1 mark each · 20 marks

Q16. The figure shows a plot of land. What is its area?



- (A) 104 sq m (B) 111 sq m (C) 108 sq m (D) 120 sq m

Q17. Find the next number: 2, 6, 12, 20, 30, ____

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

Q18. 9.7 km = _____ m

- (A) 97,000 (B) 970 (C) 9,700 (D) 97

Q19. $2,320 \div 20 = ?$

- (A) 117 (B) 116 (C) 126 (D) 106

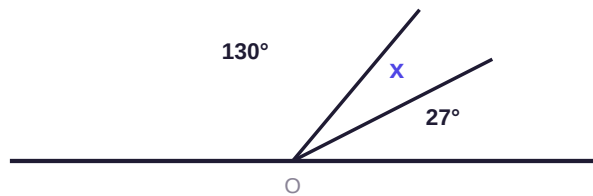
Q20. $27 - 7.35 = ?$

- (A) 19.55 (B) 19.65 (C) 20.65 (D) 19.75

Q21. Round 78,053 to the nearest thousand.

- (A) 78,100 (B) 78,000 (C) 77,000 (D) 79,000

Q22. In the given figure, find the value of x .



- (A) 50° (B) 33° (C) 13° (D) 23°

Q23. $1\text{ L } 850\text{ mL} \times 5 = ?$

- (A) $9\text{ L } 150\text{ mL}$ (B) $9\text{ L } 250\text{ mL}$ (C) $10\text{ L } 250\text{ mL}$ (D) $9\text{ L } 350\text{ mL}$

Q24. What is the place value of 8 in the number 9,78,55,111?

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

Q25. $452 \times 35 = ?$

- (A) 15,820 (B) 16,272 (C) 15,785 (D) 15,920

Q26. At 6 a.m. the temperature was 14°C . By noon it had risen by 9°C , and by night it had fallen by 6°C . What was the temperature at night?

- (A) 15°C (B) 19°C (C) 17°C (D) 23°C

Q27. $\frac{2}{3} + \frac{4}{6} = ?$

- (A) 1 (B) $1\frac{1}{3}$ (C) $1\frac{1}{2}$ (D) $1\frac{5}{6}$

Q28. $1,79,774 - 1,04,324 = ?$

- (A) 75,440 (B) 75,550 (C) 76,450 (D) 75,450

Q29. What is the smallest number that can be divided exactly by both 12 and 6?

- (A) 72 (B) 18 (C) 12 (D) 6

Q30. $3\text{ kg } 150\text{ g} - 1\text{ kg } 640\text{ g} = ?$

- (A) $1\text{ kg } 610\text{ g}$ (B) $2\text{ kg } 510\text{ g}$ (C) $1\text{ kg } 510\text{ g}$ (D) $1\text{ kg } 450\text{ g}$

Q31. Which of these fractions is the greatest?

- (A) $\frac{2}{3}$ (B) $\frac{4}{7}$ (C) $\frac{5}{8}$ (D) $\frac{3}{5}$

Q32. The perimeter of a square is 84 cm. What is its area?

- (A) 484 sq cm (B) 462 sq cm (C) 84 sq cm (D) 441 sq cm

Q33. $4.7\text{ km} = \underline{\hspace{2cm}}\text{ m}$

- (A) 470 (B) 47 (C) 47,000 (D) 4,700

Q34. $3,472 \div 14 = ?$

- (A) 248 (B) 249 (C) 258 (D) 238

Q35. $29 - 17.45 = ?$

- (A) 12.55 (B) 11.45 (C) 11.65 (D) 11.55

- Q36. In a class of 48 students, $\frac{7}{8}$ are girls. How many boys are there?
 (A) 42 (B) 11 (C) 6 (D) 1
- Q37. A rope 9 m long is cut into pieces each 60 cm long. How many complete pieces are obtained?
 (A) 15 (B) 17 (C) 13 (D) 20
- Q38. One dozen pens cost ₹ 96. What is the cost of 4 pens?
 (A) ₹ 40 (B) ₹ 24 (C) ₹ 48 (D) ₹ 32
- Q39. A shopkeeper sells 22 kg of rice at ₹ 53 per kg. How much money does he receive?
 (A) ₹ 1,066 (B) ₹ 1,166 (C) ₹ 1,266 (D) ₹ 1,188
- Q40. A train leaves at 9:25 a.m. and reaches its destination at 12:43 p.m. on the same day. How long is the journey?
 (A) 3 h 18 min (B) 3 h 28 min (C) 2 h 18 min (D) 4 h 18 min
- Q41. A water tank holds 240 litres. If $\frac{4}{8}$ of the water is used, how much water is left?
 (A) 121 L (B) 95 L (C) 145 L (D) 120 L
- Q42. An auto charges ₹ 20 for the first kilometre and ₹ 10 for every kilometre after that. What is the fare for a journey of 5 km?
 (A) ₹ 70 (B) ₹ 50 (C) ₹ 60 (D) ₹ 61
- Q43. A wall is 5 m long and 4 m high. How many square tiles of side 50 cm are needed to cover it completely?
 (A) 80 (B) 92 (C) 40 (D) 160
- Q44. A book has 288 pages. Ritu reads 39 pages every day for 6 days. How many pages are still left?
 (A) 54 (B) 234 (C) 59 (D) 49
- Q45. In a class of 48 students, $\frac{6}{8}$ are girls. How many boys are there?
 (A) 7 (B) 17 (C) 36 (D) 12

Achievers Section

5 questions · 3 marks each · 15 marks

- Q46. If RING is coded as WNSL, how is WIND coded?
 (A) RDIY (B) ISNB (C) GSXN (D) BNSI
- Q47. Why is a wet cloth placed on the forehead of a person with fever?
 (A) Evaporating water cools the skin (B) Water adds heat to the body
 (C) Water makes the skin thicker (D) The cloth blocks the fever
- Q48. A country's flag has saffron on top, white in the middle with a blue wheel, and green at the bottom. Which country is it?
 (A) India (B) Niger (C) Ireland (D) Italy
- Q49. 3 taps together fill a tank in 120 minutes. How long will 8 taps of the same kind take to fill it?
 (A) 120 minutes (B) 48 minutes (C) 45 minutes (D) 42 minutes

Q50. Find the next number: 5, 7, 11, 17, 25, ____

(A) 36

(B) 33

(C) 35

(D) 37

Answer Key

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

Solutions

Q1. (C) Banana, Apple, Mango are all fruits; Carrot is not.

Q2. (D) $21 + 16 - 8 = 29$. The 8 who play both were counted twice, so they are subtracted once.

Q3. (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.

Q4. (C) In alphabetical order the words run maple, marble, monkey, museum, so maple comes first.

Q5. (A) Counting lines of symmetry: equilateral triangle has 3, regular hexagon has 6, regular pentagon has 5, rectangle has 2. The answer is figure (A).

Q6. (C) The father is $16 + 20 = 36$ now, so after 3 years he will be $36 + 3 = 39$ years.

Q7. (D) Subtracting 5 from 50 gives 45.

Q8. (D) The gaps grow by one each time (+2, +3, +4, +5), so after K the next letter is P.

Q9. (B) Counting Deep only once: $8 + 10 - 1 = 17$ people.

Q10. (D) From "All metals conduct electricity. Copper is a metal." it follows necessarily that copper conducts electricity.

Q11. (B) The second word relates to the first in the same way Hear relates to Ear.

Q12. (C) 16 days later is 2 week(s) and 2 day(s), so the day moves 2 place(s) on from Thursday to Saturday.

Q13. (C) Position from the right = total - position from the left + 1 = $34 - 14 + 1 = 21$ th.

Q14. (B) Wood is not a metal.

Q15. (C) Anjali's paternal grandfather's only son is Anjali's own father, so that man's son is Anjali's own sibling. The answer is Brother.

Q16. (C) The missing corner is $(12 - 8) = 4$ m wide and $(10 - 7) = 3$ m tall. Take the full rectangle $12 \text{ m} \times 10 \text{ m} = 120$ sq m and subtract that corner, $4 \text{ m} \times 3 \text{ m} = 12$ sq m. $120 - 12 = 108$ sq m.

Q17. (A) The gaps are 4, 6, 8, 10, so the next gap is 12 and $30 + 12 = 42$.

Q18. (C) $1 \text{ km} = 1,000 \text{ m}$, so $9.7 \text{ km} = 9.7 \times 1,000 = 9,700 \text{ m}$.

Q19. (B) $20 \times 116 = 2,320$, so the quotient is 116.

Q20. (B) Write 27 as 27.00, then $27.00 - 7.35 = 19.65$.

Q21. (B) The hundreds digit is 0, so we round down to 78,000.

- Q22. (D) The three angles lie on a straight line, so they add to 180° . $x = 180^\circ - 130^\circ - 27^\circ = 23^\circ$.
- Q23. (B) $1\text{ L } 850\text{ mL} = 1,850\text{ mL}$. $1,850 \times 5 = 9,250\text{ mL} = 9\text{ L } 250\text{ mL}$.
- Q24. (C) The digit 8 stands in the 1,00,000 place, so its place value is 8,00,000.
- Q25. (A) $452 \times 35 = 452 \times 30 + 452 \times 5 = 13,560 + 2,260 = 15,820$.
- Q26. (C) $14 + 9 = 23$, then $23 - 6 = 17^\circ\text{C}$.
- Q27. (B) Make the denominators the same (6): $2/3 = 4/6$ and $4/6 = 4/6$. Adding gives $8/6 = 1\frac{1}{3}$.
- Q28. (D) $1,79,774 - 1,04,324 = 75,450$.
- Q29. (C) Listing multiples of 12 and of 6, the first number that appears in both lists is 12.
- Q30. (C) $3\text{ kg } 150\text{ g} = 3,150\text{ g}$ and $1\text{ kg } 640\text{ g} = 1,640\text{ g}$. $3,150 - 1,640 = 1,510\text{ g} = 1\text{ kg } 510\text{ g}$.
- Q31. (A) As decimals: $2/3 = 0.667$, $4/7 = 0.571$, $5/8 = 0.625$, $3/5 = 0.600$. The greatest is $2/3$.
- Q32. (D) Side $= 84 / 4 = 21\text{ cm}$, so area $= 21 \times 21 = 441\text{ sq cm}$.
- Q33. (D) $1\text{ km} = 1,000\text{ m}$, so $4.7\text{ km} = 4.7 \times 1,000 = 4,700\text{ m}$.
- Q34. (A) $14 \times 248 = 3,472$, so the quotient is 248.
- Q35. (D) Write 29 as 29.00, then $29.00 - 17.45 = 11.55$.
- Q36. (C) $7/8$ of 48 = 42 girls, so the number of boys is $48 - 42 = 6$.
- Q37. (A) $9\text{ m} = 900\text{ cm}$ and $900 / 60 = 15$ pieces.
- Q38. (D) One pen costs $96 / 12 = ₹ 8$, so 4 pens cost $4 \times 8 = ₹ 32$.
- Q39. (B) $22 \times 53 = ₹ 1,166$.
- Q40. (A) From 9:25 a.m. to 12:43 p.m. is 3 h 18 min.
- Q41. (D) $4/8$ of 240 = 120 L is used, so $240 - 120 = 120\text{ L}$ is left.
- Q42. (C) After the first kilometre there are 4 more: $20 + 4 \times 10 = ₹ 60$.
- Q43. (A) The wall is $500\text{ cm} \times 400\text{ cm} = 2,00,000\text{ sq cm}$. Each tile is $50 \times 50 = 2,500\text{ sq cm}$. $2,00,000 / 2,500 = 80$ tiles.
- Q44. (A) She reads $39 \times 6 = 234$ pages, so $288 - 234 = 54$ pages are left.
- Q45. (D) $6/8$ of 48 = 36 girls, so the number of boys is $48 - 36 = 12$.
- Q46. (D) Every letter moves 5 place(s) forward, so WIND becomes BNSI.
- Q47. (A) As the water evaporates it takes heat from the skin, which cools the body. The answer is Evaporating water cools the skin.
- Q48. (A) That describes the Indian tricolour with the Ashoka Chakra in the white band.
- Q49. (C) One tap alone would take $3 \times 120 = 360$ minutes. With 8 taps the time is $360 / 8 = 45$ minutes.
- Q50. (C) The gaps grow 2, 4, 6, 8, so the next gap is 10 and $25 + 10 = 35$.

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