

Class 6 · Mathematics Olympiad

Total questions 50	Total marks 60	Time 60 minutes	Negative marking None
-----------------------	-------------------	--------------------	--------------------------

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

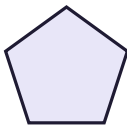
Q1. In a class, 15 students play cricket, 8 play football and 3 play both games. Every student plays at least one of the two. How many students are there in the class?

- (A) 21 (B) 23 (C) 17 (D) 20

Q2. Three of the following four are alike and form a group. Which one does NOT belong?

- (A) Krishna (B) Sahara (C) Ganga (D) Godavari

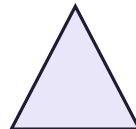
Q3. Which of these figures has exactly 5 lines of symmetry?



(A)



(B)



(C)



(D)

Q4. If JAR is written as 10 - 1 - 18 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 word would come FIRST in a dictionary?

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

Q6. In the first row the numbers are 2, 8 and 13. In the second row they are 5, 7 and 32. In the third row they are 5, 8 and ____ . The same rule applies to every row.

- (A) 39 (B) 36 (C) 38 (D) 37

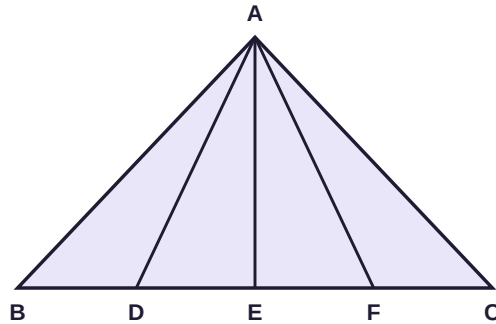
Q7. Which one does NOT belong with the others?

- (A) Pentagon (B) Circle (C) Rectangle (D) Square

Q8. Pointing to a boy in a photograph, Vikram said, "He is the son of my paternal grandfather's only son." How is the boy related to Vikram?

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

Q9. How many triangles are there in the given figure?



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

Q10. A father is 9 years older than his son. The son is 11 years old now. How old will the father be after 2 years?

- (A) 22 years (B) 20 years (C) 23 years (D) 24 years

Q11. In a certain code HAT is written as KDW. How is BAT written in that code?

- (A) EDW (B) FEX (C) YXQ (D) WDE

Q12. Anita walks 7 m towards north, turns right and walks 3 m, then turns right again and walks 7 m. How far is Anita from the starting point, and in which direction?

- (A) 10 m, North (B) 3 m, West (C) 3 m, East (D) 7 m, East

Q13. In a queue, Nita is 5th from the front and 7th from the back. How many people are in the queue altogether?

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

Q14. Read the statements and choose the conclusion that **MUST** be true.

All roses are flowers. All flowers need water.

- (A) All roses need water. (B) All flowers are roses.
(C) Only roses need water. (D) Some roses do not need water.

Q15. In a row of 27 children, Sana is 20th from the left end. What is Sana's position from the right end?

- (A) 9th (B) 7th (C) 10th (D) 8th

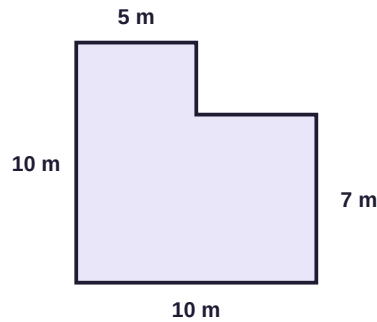
Mathematical Reasoning

20 questions · 1 mark each · 20 marks

Q16. Find the next number: 2, 6, 12, 20, 30, ____

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

Q17. The figure shows a plot of land. What is its area?



- (A) 88 sq m (B) 100 sq m (C) 80 sq m (D) 85 sq m

Q18. At 6 a.m. the temperature was 18°C . By noon it had risen by 11°C , and by night it had fallen by 6°C . What was the temperature at night?

- (A) 29°C (B) 23°C (C) 21°C (D) 25°C

Q19. Round 26,818 to the nearest thousand.

- (A) 26,000 (B) 28,000 (C) 26,800 (D) 27,000

Q20. $2,19,393 - 61,175 = ?$

- (A) 1,68,218 (B) 1,58,318 (C) 1,58,208 (D) 1,58,218

Q21. The perimeter of a square is 36 cm. What is its area?

- (A) 36 sq cm (B) 100 sq cm (C) 81 sq cm (D) 90 sq cm

Q22. $81 - 77.25 = ?$

- (A) 3.85 (B) 3.75 (C) 3.65 (D) 4.75

Q23. $\frac{1}{2} + \frac{5}{6} = ?$

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

Q24. 6.4 km = _____ m

- (A) 6,400 (B) 640 (C) 64 (D) 64,000

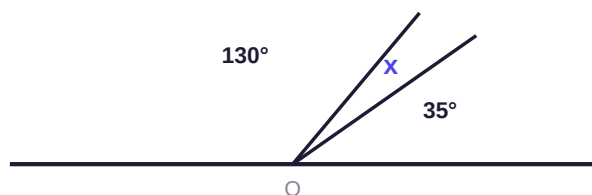
Q25. 5 kg 400 g - 4 kg 360 g = ?

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

Q26. $431 \times 33 = ?$

- (A) 14,323 (B) 14,654 (C) 14,223 (D) 14,190

Q27. In the given figure, find the value of x.



- (A) 15° (B) 25° (C) 50° (D) 5°

Q28. $8\text{ L } 750\text{ mL} \times 2 = ?$

- (A) 17 L 500 mL (B) 18 L 500 mL (C) 17 L 600 mL (D) 17 L 400 mL

Q29. What is the smallest number that can be divided exactly by both 12 and 10?

- (A) 72 (B) 60 (C) 48 (D) 70

Q30. $2,196 \div 9 = ?$

- (A) 234 (B) 244 (C) 245 (D) 254

Q31. Which of these fractions is the greatest?

- (A) $\frac{3}{4}$ (B) $\frac{2}{3}$ (C) $\frac{5}{8}$ (D) $\frac{7}{12}$

Q32. At 6 a.m. the temperature was 17°C . By noon it had risen by 6°C , and by night it had fallen by 4°C . What was the temperature at night?

- (A) 17°C (B) 19°C (C) 23°C (D) 21°C

Q33. Round 1,666 to the nearest thousand.

- (A) 3,000 (B) 1,700 (C) 2,000 (D) 1,000

Q34. $3,47,318 - 1,98,494 = ?$

- (A) 1,48,824 (B) 1,58,824 (C) 1,48,924 (D) 1,48,814

Q35. What is the place value of 1 in the number 88,38,173?

- (A) 100 (B) 1 (C) 10 (D) 1,000

Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. A water tank holds 200 litres. If $\frac{2}{4}$ of the water is used, how much water is left?

- (A) 75 L (B) 101 L (C) 125 L (D) 100 L

Q37. A shopkeeper sells 16 kg of rice at ₹ 17 per kg. How much money does he receive?

- (A) ₹ 372 (B) ₹ 172 (C) ₹ 288 (D) ₹ 272

Q38. A rope 12 m long is cut into pieces each 75 cm long. How many complete pieces are obtained?

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

Q39. An auto charges ₹ 25 for the first kilometre and ₹ 8 for every kilometre after that. What is the fare for a journey of 5 km?

- (A) ₹ 49 (B) ₹ 58 (C) ₹ 57 (D) ₹ 65

Q40. A train leaves at 7:40 a.m. and reaches its destination at 3:23 p.m. on the same day. How long is the journey?

- (A) 6 h 43 min (B) 8 h 43 min (C) 7 h 43 min (D) 7 h 53 min

Q41. One dozen pens cost ₹ 324. What is the cost of 6 pens?

- (A) ₹ 135 (B) ₹ 216 (C) ₹ 162 (D) ₹ 189

Q42. A wall is 7 m long and 5 m high. How many square tiles of side 25 cm are needed to cover it completely?

- (A) 572 (B) 1120 (C) 560 (D) 280

Q43. In a class of 40 students, $\frac{1}{5}$ are girls. How many boys are there?

- (A) 32 (B) 8 (C) 37 (D) 27

Q44. A book has 256 pages. Ritu reads 31 pages every day for 7 days. How many pages are still left?

- (A) 34 (B) 217 (C) 44 (D) 39

Q45. A water tank holds 320 litres. If $\frac{2}{4}$ of the water is used, how much water is left?

- (A) 185 L (B) 160 L (C) 161 L (D) 135 L

Achievers Section

5 questions · 3 marks each · 15 marks

Q46. The clock in the figure shows 8:00. What is the angle between the hour hand and the minute hand?



- (A) 135° (B) 120° (C) 150° (D) 105°

Q47. Find the next number: 4, 6, 10, 16, 24, ____

- (A) 32 (B) 36 (C) 35 (D) 34

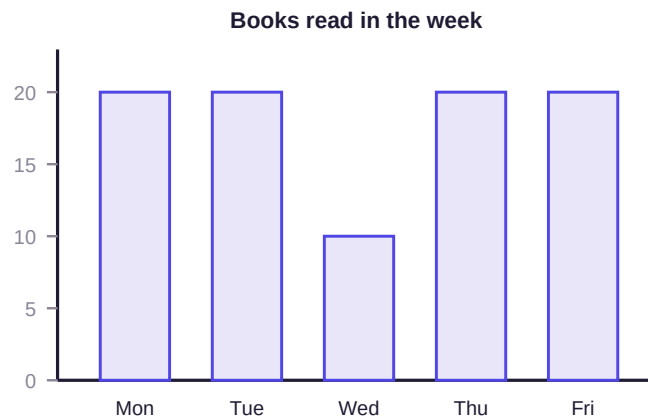
Q48. If LAMP is coded as NCOR, how is MILK coded?

- (A) QMPO (B) OKNM (C) MNKO (D) KGJI

Q49. You must be 18 to vote in India. A student turns 18 in March. Can they vote in an election held in June of that year?

- (A) No, only after turning 19 (B) No, voting starts at 21
(C) Only with a parent present (D) Yes, because they are already 18 by then

Q50. The bar graph shows the number of books read by a class on each day of one week. How many books were read in the whole week?



(A) 85

(B) 90

(C) 100

(D) 95

Answer Key

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

Solutions

Q1. (D) $15 + 8 - 3 = 20$. The 3 who play both were counted twice, so they are subtracted once.

Q2. (B) Godavari, Krishna, Ganga are all rivers; Sahara is not.

Q3. (A) Counting lines of symmetry: regular pentagon has 5, square has 4, equilateral triangle has 3, rectangle has 2. The answer is figure (A).

Q4. (A) C is letter 3 and U is letter 21 and P is letter 16, so $CUP = 3 - 21 - 16$.

Q5. (B) In alphabetical order the words run mango, melon, minute, monkey, so mango comes first.

Q6. (D) The rule is: multiply the two numbers, then subtract 3. Check: 2, 8 gives 13 and 5, 7 gives 32; so 5, 8 gives 37.

Q7. (B) Circle has no straight sides.

Q8. (A) Vikram's paternal grandfather's only son is Vikram's own father, so that man's son is Vikram's own sibling. The answer is Brother.

Q9. (D) Every triangle has apex A and two of the 5 base points as its other corners. Choosing 2 from 5 gives 10 triangles.

Q10. (A) The father is $11 + 9 = 20$ now, so after 2 years he will be $20 + 2 = 22$ years.

- Q11. (A) Each letter moves 3 place(s) forward in the alphabet, so BAT becomes EDW.
- Q12. (C) The two 7 m walks (north, then south) cancel out, leaving only the 3 m walked towards the east. So the answer is 3 m, East.
- Q13. (D) Counting Nita only once: $5 + 7 - 1 = 11$ people.
- Q14. (A) From "All roses are flowers. All flowers need water." it follows necessarily that all roses need water.
- Q15. (D) Position from the right = total - position from the left + 1 = $27 - 20 + 1 = 8$ th.
- Q16. (B) The gaps are 4, 6, 8, 10, so the next gap is 12 and $30 + 12 = 42$.
- Q17. (D) The missing corner is $(10 - 5) = 5$ m wide and $(10 - 7) = 3$ m tall. Take the full rectangle $10 \text{ m} \times 10 \text{ m} = 100$ sq m and subtract that corner, $5 \text{ m} \times 3 \text{ m} = 15$ sq m. $100 - 15 = 85$ sq m.
- Q18. (B) $18 + 11 = 29$, then $29 - 6 = 23^\circ\text{C}$.
- Q19. (D) The hundreds digit is 8, so we round up to 27,000.
- Q20. (D) $2,19,393 - 61,175 = 1,58,218$.
- Q21. (C) Side = $36 / 4 = 9$ cm, so area = $9 \times 9 = 81$ sq cm.
- Q22. (B) Write 81 as 81.00, then $81.00 - 77.25 = 3.75$.
- Q23. (C) Make the denominators the same (6): $1/2 = 3/6$ and $5/6 = 5/6$. Adding gives $8/6 = 1 \frac{1}{3}$.
- Q24. (A) $1 \text{ km} = 1,000 \text{ m}$, so $6.4 \text{ km} = 6.4 \times 1,000 = 6,400 \text{ m}$.
- Q25. (B) $5 \text{ kg } 400 \text{ g} = 5,400 \text{ g}$ and $4 \text{ kg } 360 \text{ g} = 4,360 \text{ g}$. $5,400 - 4,360 = 1,040 \text{ g} = 1 \text{ kg } 40 \text{ g}$.
- Q26. (C) $431 \times 33 = 431 \times 30 + 431 \times 3 = 12,930 + 1,293 = 14,223$.
- Q27. (A) The three angles lie on a straight line, so they add to 180° . $x = 180^\circ - 130^\circ - 35^\circ = 15^\circ$.
- Q28. (A) $8 \text{ L } 750 \text{ mL} = 8,750 \text{ mL}$. $8,750 \times 2 = 17,500 \text{ mL} = 17 \text{ L } 500 \text{ mL}$.
- Q29. (B) Listing multiples of 12 and of 10, the first number that appears in both lists is 60.
- Q30. (B) $9 \times 244 = 2,196$, so the quotient is 244.
- Q31. (A) As decimals: $3/4 = 0.750$, $5/8 = 0.625$, $2/3 = 0.667$, $7/12 = 0.583$. The greatest is $3/4$.
- Q32. (B) $17 + 6 = 23$, then $23 - 4 = 19^\circ\text{C}$.
- Q33. (C) The hundreds digit is 6, so we round up to 2,000.
- Q34. (A) $3,47,318 - 1,98,494 = 1,48,824$.
- Q35. (A) The digit 1 stands in the 100 place, so its place value is 100.
- Q36. (D) $2/4$ of $200 = 100 \text{ L}$ is used, so $200 - 100 = 100 \text{ L}$ is left.
- Q37. (D) $16 \times 17 = ₹ 272$.
- Q38. (B) $12 \text{ m} = 1,200 \text{ cm}$ and $1,200 / 75 = 16$ pieces.
- Q39. (C) After the first kilometre there are 4 more: $25 + 4 \times 8 = ₹ 57$.
- Q40. (C) From 7:40 a.m. to 3:23 p.m. is 7 h 43 min.
- Q41. (C) One pen costs $324 / 12 = ₹ 27$, so 6 pens cost $6 \times 27 = ₹ 162$.
- Q42. (C) The wall is $700 \text{ cm} \times 500 \text{ cm} = 3,50,000$ sq cm. Each tile is $25 \times 25 = 625$ sq cm. $3,50,000 / 625 = 560$ tiles.
- Q43. (A) $1/5$ of $40 = 8$ girls, so the number of boys is $40 - 8 = 32$.
- Q44. (D) She reads $31 \times 7 = 217$ pages, so $256 - 217 = 39$ pages are left.
- Q45. (B) $2/4$ of $320 = 160 \text{ L}$ is used, so $320 - 160 = 160 \text{ L}$ is left.
- Q46. (B) The minute hand is at 0° from 12 and the hour hand at 240° from 12, so the angle between them is 120° .
- Q47. (D) The gaps grow 2, 4, 6, 8, so the next gap is 10 and $24 + 10 = 34$.
- Q48. (B) Every letter moves 2 place(s) forward, so MILK becomes OKNM.
- Q49. (D) The voting age is 18, and the student has already turned 18 before the election. The answer is Yes, because they are already 18 by then.
- Q50. (B) $20 + 20 + 10 + 20 + 20 = 90$ books.

