

# Class 5 · Mathematics Olympiad

|                       |                   |                    |                          |
|-----------------------|-------------------|--------------------|--------------------------|
| Total questions<br>50 | Total marks<br>60 | Time<br>60 minutes | Negative marking<br>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. Cow : Calf :: Dog : \_\_\_\_

- (A) Puppy (B) Cub (C) Kitten (D) Foal

Q2. Which word would come FIRST in a dictionary?

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

Q3. 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) Uncle (D) Brother

Q4. Find the odd one out: 12, 24, 30, 42, 68

- (A) 68 (B) 24 (C) 12 (D) 42

Q5. In a row of 29 children, Arjun is 10th from the left end. What is Arjun's position from the right end?

- (A) 19th (B) 20th (C) 21th (D) 22th

Q6. A father is 9 years older than his son. The son is 20 years old now. How old will the father be after 5 years?

- (A) 39 years (B) 34 years (C) 35 years (D) 29 years

Q7. Which letter comes next? C, F, I, L, \_\_\_\_

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

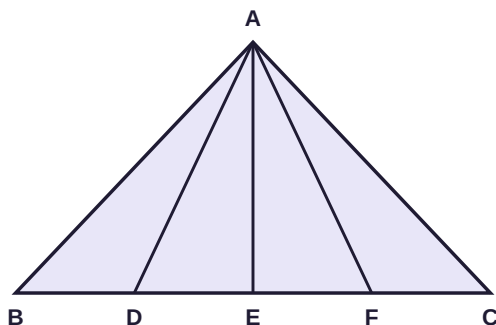
Q8. Which letter comes next? F, H, K, O, \_\_\_\_

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

Q9. Arjun walks 4 m towards north, turns right and walks 2 m, then turns right again and walks 4 m. How far is Arjun from the starting point, and in which direction?

- (A) 6 m, North (B) 2 m, East (C) 2 m, West (D) 4 m, East

Q10. How many triangles are there in the given figure?



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

Q11.  $4 : 16 :: 12 : \underline{\hspace{1cm}}$

- (A) 169                      (B) 145                      (C) 144                      (D) 121

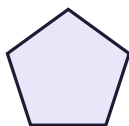
Q12. Count backward in 3s: 27, 24, 21, 18,  $\underline{\hspace{1cm}}$

- (A) 16                      (B) 12                      (C) 18                      (D) 15

Q13. Which of these figures has exactly 4 lines of symmetry?



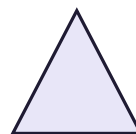
(A)



(B)



(C)



(D)

Q14. In the first row the numbers are 7, 3 and 22. In the second row they are 6, 8 and 49. In the third row they are 4, 6 and  $\underline{\hspace{1cm}}$ . The same rule applies to every row.

- (A) 24                      (B) 26                      (C) 25                      (D) 27

Q15. In a certain code HAT is written as JCV. How is CAT written in that code?

- (A) VCE                      (B) AYR                      (C) ECV                      (D) FDW

## Mathematical Reasoning

20 questions · 1 mark each · 20 marks

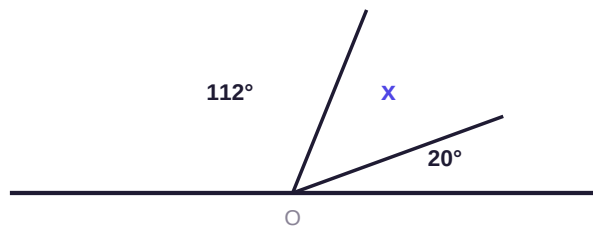
Q16.  $\frac{1}{2} + \frac{3}{10} = ?$

- (A)  $\frac{4}{5}$                       (B)  $\frac{9}{10}$                       (C)  $\frac{3}{10}$                       (D)  $1\frac{3}{10}$

Q17. Round 42,540 to the nearest thousand.

- (A) 43,000                      (B) 42,500                      (C) 44,000                      (D) 42,000

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



- (A)  $48^\circ$  (B)  $38^\circ$  (C)  $58^\circ$  (D)  $68^\circ$

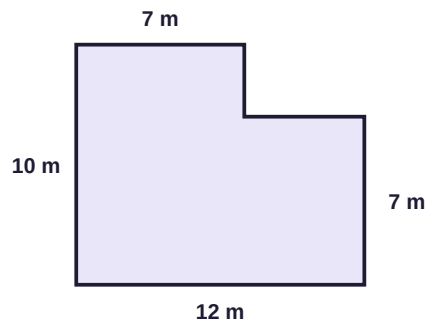
Q19.  $1,456 \div 7 = ?$

- (A) 208 (B) 198 (C) 209 (D) 218

Q20. The perimeter of a square is 72 cm. What is its area?

- (A) 342 sq cm (B) 361 sq cm (C) 72 sq cm (D) 324 sq cm

Q21. The figure shows a plot of land. What is its area?



- (A) 120 sq m (B) 105 sq m (C) 100 sq m (D) 108 sq m

Q22. Find the next number: 2, 6, 12, 20, 30, \_\_\_\_

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

Q23. Which of these fractions is the greatest?

- (A)  $\frac{4}{7}$  (B)  $\frac{7}{10}$  (C)  $\frac{5}{6}$  (D)  $\frac{2}{3}$

Q24.  $2,84,492 - 1,22,383 = ?$

- (A) 1,72,109 (B) 1,62,109 (C) 1,62,209 (D) 1,62,099

Q25.  $4 \text{ L } 650 \text{ mL} \times 2 = ?$

- (A) 9 L 300 mL (B) 9 L 400 mL (C) 10 L 300 mL (D) 9 L 200 mL

Q26. What is the place value of 2 in the number 37,36,627?

- (A) 21 (B) 200 (C) 20 (D) 2

Q27. What is the smallest number that can be divided exactly by both 4 and 8?

- (A) 12 (B) 16 (C) 8 (D) 4

Q28. At 6 a.m. the temperature was  $22^\circ\text{C}$ . By noon it had risen by  $8^\circ\text{C}$ , and by night it had fallen by  $6^\circ\text{C}$ . What was the temperature at night?

- (A)  $22^\circ\text{C}$  (B)  $24^\circ\text{C}$  (C)  $30^\circ\text{C}$  (D)  $26^\circ\text{C}$

Q29.  $87 - 15.23 = ?$

- (A) 71.67 (B) 71.77 (C) 72.77 (D) 71.87

Q30.  $9 \text{ kg } 250 \text{ g} - 5 \text{ kg } 360 \text{ g} = ?$

- (A) 3 kg 990 g (B) 3 kg 890 g (C) 4 kg 890 g (D) 3 kg 830 g

Q31.  $108 \times 22 = ?$

- (A) 2,476 (B) 2,484 (C) 2,354 (D) 2,376

Q32.  $1.5 \text{ km} = \underline{\hspace{1cm}} \text{ m}$

- (A) 15,000 (B) 1,500 (C) 15 (D) 150

Q33.  $\frac{1}{3} + \frac{7}{10} = ?$

- (A)  $1 \frac{8}{15}$  (B)  $1 \frac{2}{15}$  (C)  $\frac{7}{10}$  (D)  $1 \frac{1}{30}$

Q34. Round 38,991 to the nearest thousand.

- (A) 39,001 (B) 38,000 (C) 39,000 (D) 40,000

Q35.  $1,700 \div 17 = ?$

- (A) 110 (B) 90 (C) 101 (D) 100

### Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. A rope 5.4 m long is cut into pieces each 60 cm long. How many complete pieces are obtained?

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

Q37. One dozen pens cost ₹ 288. What is the cost of 4 pens?

- (A) ₹ 144 (B) ₹ 120 (C) ₹ 72 (D) ₹ 96

Q38. A book has 218 pages. Ritu reads 34 pages every day for 5 days. How many pages are still left?

- (A) 53 (B) 43 (C) 48 (D) 170

Q39. A shopkeeper sells 23 kg of rice at ₹ 59 per kg. How much money does he receive?

- (A) ₹ 1,380 (B) ₹ 1,257 (C) ₹ 1,357 (D) ₹ 1,457

Q40. A water tank holds 240 litres. If  $\frac{2}{4}$  of the water is used, how much water is left?

- (A) 145 L (B) 95 L (C) 121 L (D) 120 L

Q41. 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) 560 (B) 572 (C) 1120 (D) 280

Q42. In a class of 16 students,  $\frac{1}{4}$  are girls. How many boys are there?

- (A) 12 (B) 4 (C) 7 (D) 17

Q43. An auto charges ₹ 20 for the first kilometre and ₹ 10 for every kilometre after that. What is the fare for a journey of 10 km?

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

Q44. A train leaves at 6:10 a.m. and reaches its destination at 2:08 p.m. on the same day. How long is the journey?

- (A) 7 h 58 min (B) 6 h 58 min (C) 7 h 48 min (D) 8 h 58 min

Q45. A rope 13.5 m long is cut into pieces each 75 cm long. How many complete pieces are obtained?

- (A) 18 (B) 23 (C) 20 (D) 16

### Achievers Section

5 questions · 3 marks each · 15 marks

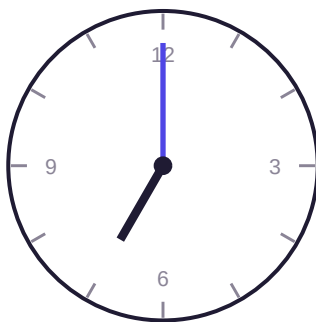
Q46. Rahul finished the puzzle in two minutes and said it was 'once in a blue moon'. What did he mean?

- (A) very often (B) every night (C) at sunrise (D) very rarely

Q47. 3 taps together fill a tank in 24 minutes. How long will 12 taps of the same kind take to fill it?

- (A) 3 minutes (B) 9 minutes (C) 24 minutes (D) 6 minutes

Q48. The clock in the figure shows 7:00. What is the angle between the hour hand and the minute hand?



- (A)  $150^\circ$  (B)  $165^\circ$  (C)  $135^\circ$  (D)  $180^\circ$

Q49. The average of 4 numbers is 36. 3 of them are 111, 28, 1. What is the remaining number?

- (A) 6 (B) 2 (C) 4 (D) 36

Q50. Why is it safer to switch off a computer using the Shut Down option rather than pulling out the plug?

- (A) It closes files properly so data is not lost (B) It saves electricity only  
(C) It makes the computer faster next time (D) It cleans the screen

### Answer Key

|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| A  | B  | D  | A  | B  | B  | B  | D  | B  | A  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| C  | D  | C  | C  | C  | A  | A  | A  | A  | D  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| B  | C  | C  | B  | A  | C  | C  | B  | B  | B  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

|          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>D</b> | <b>B</b> | <b>D</b> | <b>C</b> | <b>D</b> | <b>D</b> | <b>D</b> | <b>C</b> | <b>C</b> | <b>D</b> |
| 41       | 42       | 43       | 44       | 45       | 46       | 47       | 48       | 49       | 50       |
| <b>A</b> | <b>A</b> | <b>A</b> | <b>A</b> | <b>A</b> | <b>D</b> | <b>D</b> | <b>A</b> | <b>C</b> | <b>A</b> |

## Solutions

- Q1. (A) The second word relates to the first in the same way Puppy relates to Dog.
- Q2. (B) In alphabetical order the words run marble, melon, minute, mother, so marble comes first.
- Q3. (D) 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.
- Q4. (A) Every other number is a multiple of 6. 68 is not.
- Q5. (B) Position from the right = total - position from the left + 1 =  $29 - 10 + 1 = 20$ th.
- Q6. (B) The father is  $20 + 9 = 29$  now, so after 5 years he will be  $29 + 5 = 34$  years.
- Q7. (B) Each letter moves 3 place(s) forward in the alphabet, so after L comes O.
- Q8. (D) The gaps grow by one each time (+2, +3, +4, +5), so after O the next letter is T.
- Q9. (B) The two 4 m walks (north, then south) cancel out, leaving only the 2 m walked towards the east. So the answer is 2 m, East.
- Q10. (A) Every triangle has apex A and two of the 5 base points as its other corners. Choosing 2 from 5 gives 10 triangles.
- Q11. (C) The second number is the first multiplied by itself:  $4 \times 4 = 16$ , so  $12 \times 12 = 144$ .
- Q12. (D) Subtracting 3 from 18 gives 15.
- Q13. (C) Counting lines of symmetry: rectangle has 2, regular pentagon has 5, square has 4, equilateral triangle has 3. The answer is figure (C).
- Q14. (C) The rule is: multiply the two numbers, then add 1. Check: 7, 3 gives 22 and 6, 8 gives 49; so 4, 6 gives 25.
- Q15. (C) Each letter moves 2 place(s) forward in the alphabet, so CAT becomes ECV.
- Q16. (A) Make the denominators the same (10):  $1/2 = 5/10$  and  $3/10 = 3/10$ . Adding gives  $8/10 = 4/5$ .
- Q17. (A) The hundreds digit is 5, so we round up to 43,000.
- Q18. (A) The three angles lie on a straight line, so they add to  $180^\circ$ .  $x = 180^\circ - 112^\circ - 20^\circ = 48^\circ$ .
- Q19. (A)  $7 \times 208 = 1,456$ , so the quotient is 208.
- Q20. (D) Side =  $72 / 4 = 18$  cm, so area =  $18 \times 18 = 324$  sq cm.
- Q21. (B) The missing corner is  $(12 - 7) = 5$  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,  $5 \text{ m} \times 3 \text{ m} = 15$  sq m.  $120 - 15 = 105$  sq m.
- Q22. (C) The gaps are 4, 6, 8, 10, so the next gap is 12 and  $30 + 12 = 42$ .
- Q23. (C) As decimals:  $7/10 = 0.700$ ,  $2/3 = 0.667$ ,  $4/7 = 0.571$ ,  $5/6 = 0.833$ . The greatest is  $5/6$ .
- Q24. (B)  $2,84,492 - 1,22,383 = 1,62,109$ .
- Q25. (A)  $4 \text{ L } 650 \text{ mL} = 4,650 \text{ mL}$ .  $4,650 \times 2 = 9,300 \text{ mL} = 9 \text{ L } 300 \text{ mL}$ .
- Q26. (C) The digit 2 stands in the 10 place, so its place value is 20.
- Q27. (C) Listing multiples of 4 and of 8, the first number that appears in both lists is 8.
- Q28. (B)  $22 + 8 = 30$ , then  $30 - 6 = 24^\circ\text{C}$ .
- Q29. (B) Write 87 as 87.00, then  $87.00 - 15.23 = 71.77$ .
- Q30. (B)  $9 \text{ kg } 250 \text{ g} = 9,250 \text{ g}$  and  $5 \text{ kg } 360 \text{ g} = 5,360 \text{ g}$ .  $9,250 - 5,360 = 3,890 \text{ g} = 3 \text{ kg } 890 \text{ g}$ .
- Q31. (D)  $108 \times 22 = 108 \times 20 + 108 \times 2 = 2,160 + 216 = 2,376$ .
- Q32. (B)  $1 \text{ km} = 1,000 \text{ m}$ , so  $1.5 \text{ km} = 1.5 \times 1,000 = 1,500 \text{ m}$ .
- Q33. (D) Make the denominators the same (30):  $1/3 = 10/30$  and  $7/10 = 21/30$ . Adding gives  $31/30 = 1 \frac{1}{30}$ .

- Q34. (C) The hundreds digit is 9, so we round up to 39,000.
- Q35. (D)  $17 \times 100 = 1,700$ , so the quotient is 100.
- Q36. (D)  $5.4 \text{ m} = 540 \text{ cm}$  and  $540 / 60 = 9$  pieces.
- Q37. (D) One pen costs  $288 / 12 = ₹ 24$ , so 4 pens cost  $4 \times 24 = ₹ 96$ .
- Q38. (C) She reads  $34 \times 5 = 170$  pages, so  $218 - 170 = 48$  pages are left.
- Q39. (C)  $23 \times 59 = ₹ 1,357$ .
- Q40. (D)  $2/4$  of  $240 = 120 \text{ L}$  is used, so  $240 - 120 = 120 \text{ L}$  is left.
- Q41. (A) The wall is  $700 \text{ cm} \times 500 \text{ cm} = 3,50,000 \text{ sq cm}$ . Each tile is  $25 \times 25 = 625 \text{ sq cm}$ .  $3,50,000 / 625 = 560$  tiles.
- Q42. (A)  $1/4$  of  $16 = 4$  girls, so the number of boys is  $16 - 4 = 12$ .
- Q43. (A) After the first kilometre there are 9 more:  $20 + 9 \times 10 = ₹ 110$ .
- Q44. (A) From 6:10 a.m. to 2:08 p.m. is 7 h 58 min.
- Q45. (A)  $13.5 \text{ m} = 1,350 \text{ cm}$  and  $1,350 / 75 = 18$  pieces.
- Q46. (D) In this sentence 'once in a blue moon' means very rarely.
- Q47. (D) One tap alone would take  $3 \times 24 = 72$  minutes. With 12 taps the time is  $72 / 12 = 6$  minutes.
- Q48. (A) The minute hand is at  $0^\circ$  from 12 and the hour hand at  $210^\circ$  from 12, so the angle between them is  $150^\circ$ .
- Q49. (C) The 4 numbers add up to  $36 \times 4 = 144$ . The given numbers add up to 140, so the missing number is  $144 - 140 = 4$ .
- Q50. (A) Shutting down lets the system finish writing files; cutting power can corrupt them. The answer is It closes files properly so data is not lost.

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