STUDENT COPY · SET B

Class 7 · Mathematics Olympiad

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

Name: _____ Class/Section: _____ Roll no: _____

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. Your teacher has the answers.
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.

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Logical Reasoning

15 questions · 1 mark each · 15 marks

Q1. Which letter comes next? B, F, J, N, ___

(A) Q (B) S (C) V (D) R

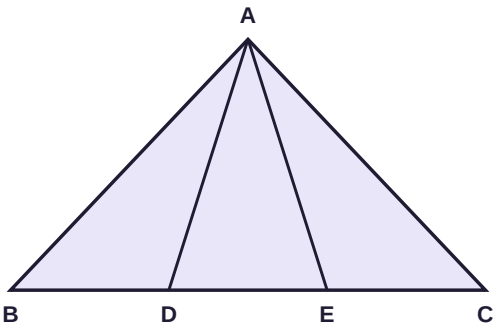
Q2. Three of the following four are alike and form a group. Which one does NOT belong?

(A) Sahara (B) Godavari (C) Krishna (D) Yamuna

Q3. If TIN is written as 20 - 9 - 14 using the positions of the letters in the alphabet, how is BAG written?

(A) 7 - 1 - 2 (B) 3 - 2 - 8 (C) 25 - 26 - 20 (D) 2 - 1 - 7

Q4. How many triangles are there in the given figure?



(A) 8 (B) 6 (C) 5 (D) 7

Q5. 5 : 25 :: 8 : ___

(A) 16 (B) 49 (C) 81 (D) 64

Q6. All but one of these numbers are multiples of the same number. Find the one that is not: 12, 22, 24, 30, 48

(A) 22 (B) 30 (C) 24 (D) 12

Q7. In a queue, Farah is 9th from the front and 6th from the back. How many people are in the queue altogether?

(A) 16 (B) 14 (C) 13 (D) 15

Q8. In the first row the numbers are 4, 4 and 19. In the second row they are 8, 6 and 51. In the third row they are 4, 9 and ___ . The same rule applies to every row.

(A) 39 (B) 38 (C) 40 (D) 41

Q9. In a class, 20 students play cricket, 22 play football and 7 play both games. Every student plays at least one of the two. How many students are there in the class?

(A) 35 (B) 42 (C) 28 (D) 36

Q10. Arun walks 10 m north, then 4 m east, then 4 m south. Where is Arun now, relative to the starting point?

(A) 6 m north and 4 m east (B) 10 m north and 4 m east

(C) 7 m north and 4 m east (D) 6 m north and 5 m east

Q11. Pointing to a boy in a photograph, Vikram said, “This boy is not me, but he is the son of my paternal grandfather’s only son.” How is the boy related to Vikram?

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

Q12. In a certain code TIN is written as WLQ. How is BAT written in that code?

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

Q13. Kabir walks 8 m towards north, turns right and walks 4 m, then turns right again and walks 8 m. How far is Kabir from the starting point, and in which direction?

(A) 4 m, West (B) 12 m, North (C) 4 m, East (D) 8 m, East

Q14. A father is 33 years older than his son. The son is 14 years old now. How old will the father be after 5 years?

(A) 52 years (B) 53 years (C) 57 years (D) 47 years

Q15. If the 12th of a month is a Wednesday, what day of the week is the 29th of the same month?

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

Mathematical Reasoning

20 questions · 1 mark each · 20 marks

Q16. In ΔABC, angle A is twice angle B and angle C = 30°. What is angle B?

(A) 75° (B) 60° (C) 100° (D) 50°

Q17. A parallelogram has base 12 cm and height 7 cm. A triangle on the same base and between the same parallels is cut out. What area remains?

(A) 84 cm^2 (B) 49 cm^2

(C) 21 cm^2 (D) 42 cm^2

Q18. A quiz gives +5 for a correct answer and -2 for a wrong answer. Riya answered 18 questions and scored 48. How many were wrong?

(A) 5 (B) 8 (C) 6 (D) 4

Q19. Which is equal to $2^5 \times 4^3 \div 8^2$?

(A) 256 (B) 64 (C) 32 (D) 2

Q20. Data: 6, 8, 8, 9, 12, x has mean 9. What is the median?

(A) 8.5 (B) 9 (C) 10 (D) 11

Q21. Which number lies between 3/8 and 0.4?

(A) 0.38 (B) 0.37 (C) 0.41 (D) 0.35

Q22. In a cuboid, choose one edge. How many other edges are neither parallel to it nor meet it?

(A) 5 (B) 3 (C) 6 (D) 4

Q23. In ΔABC, angle A is twice angle B and angle C is 20° more than angle B. What is angle A?

(A) 60° (B) 40° (C) 80° (D) 100°

Q24. Two straight lines intersect. One angle is three times its adjacent angle. What is the larger angle?

(A) 135° (B) 45° (C) 90° (D) 120°

Q25. A bag marked ₹80 is sold at 10% discount. The seller gains 12.5% on cost price. What was the cost price?

(A) ₹64 (B) ₹90 (C) ₹70 (D) ₹72

Q26. A cube painted on all faces is cut into 27 equal small cubes. How many small cubes have exactly two painted faces?

(A) 8 (B) 12 (C) 6 (D) 24

Q27. For ΔABC and ΔDEF, AB=DE and angle B=angle E. Which extra condition proves congruence by SAS?

(A) BC = EF (B) AC = DF

(C) angle A = angle D (D) BC = DE

Q28. A triangle has two sides 7 cm and 10 cm. Which length cannot be the third side if it is a whole number?

(A) 17 cm (B) 4 cm (C) 10 cm (D) 16 cm

Q29. In ΔABC, angles A and B are in the ratio 2:3. The exterior angle at C is 125°. What is angle B?

(A) 55° (B) 105° (C) 50° (D) 75°

Q30. At the same rate, ₹600 gives ₹90 simple interest in 3 years. What interest will ₹800 give in 2 years?

(A) ₹120 (B) ₹60 (C) ₹80 (D) ₹160

Q31. For x = -2 and y = 3, what is the value of $2x^2 - xy - y^2$?

(A) -7 (B) 11 (C) -17 (D) 5

Q32. Find the length of fencing for a circular garden of radius 7 m, leaving a 4 m gate. Use π=22/7.

(A) 48 m (B) 44 m (C) 18 m (D) 40 m

Q33. Two lines intersect. One angle is 68°. What is the sum of the two angles adjacent to it?

(A) 136° (B) 292° (C) 112° (D) 224°

Q34. Scores are 7, 3, 8, 7, 5. If one more score 10 is added, how does the mean change?

(A) decreases by 2/3 (B) increases by 2/3

(C) increases by 4 (D) stays the same

Q35. In ΔABC, angle A = 2 × angle B and angle C = angle B + 30°. What is angle B?

(A) 37.5° (B) 75° (C) 50° (D) 30°

Everyday Mathematics

10 questions · 1 mark each · 10 marks

Q36. Two triangular kite frames have side lengths 5 cm, 7 cm, 9 cm, but drawn in different orders. Which test proves they are congruent?

(A) SAS congruence (B) SSS congruence

(C) RHS congruence (D) ASA congruence

Q37. A taxi charges ₹30 fixed and ₹12 per km. Mehul paid ₹126 in all. How far did he travel?

(A) 6 km (B) 9 km (C) 8 km (D) 10.5 km

Q38. A circular mat has radius 7 cm. A square patch of side 7 cm is cut from it. What area remains? Use π = 22/7.

(A) 98 cm^2 (B) 203 cm^2

(C) 105 cm^2 (D) 147 cm^2

Q39. In a quiz, a wrong answer gives -2/3 mark and a skipped question gives -¼ mark. Ravi has one wrong and one skipped. What is his total mark change?

(A) -3/7 mark (B) -5/12 mark (C) -1/6 mark (D) -11/12 mark

Q40. A notebook costs ₹18 and a pen costs ₹12. What expression gives the cost of n notebooks and 1 pen?

(A) 18n + 12 (B) 18n − 12 (C) 30n (D) 18 + 12n

Q41. Asha had 1.5 kg rice. She used 0.625 kg for lunch and 0.5 kg for dinner. How much rice is left?

(A) 1.375 kg (B) 0.875 kg (C) 0.375 kg (D) 0.125 kg

Q42. A circular park track has radius 35 m. Using π = 22/7, how far does Rohan run in 3 full rounds?

(A) 220 m (B) 660 m (C) 770 m (D) 330 m

Q43. In a mall, Asha is on floor 3. She goes down 7 floors, up 5 floors, then down 2 floors. On which floor is she now?

(A) floor 1 (B) floor -1 (C) floor -11 (D) floor 3

Q44. In a mall lift, Riya starts at floor −2, goes up 7 floors, then down 3 floors. On which floor is she?

(A) floor 8 (B) floor −12 (C) floor 2 (D) floor −2

Q45. An auto charges ₹30 fixed plus ₹12 per km. If the bill is ₹126, how far was the ride?

(A) 7 km (B) 8 km (C) 10.5 km (D) 13 km

Achievers Section

5 questions · 3 marks each · 15 marks

Q46. In a triangle, the second angle is twice the first and the third is 30° more than the first. What is the largest angle?

(A) 105° (B) 75° (C) 67½° (D) 37½°

Q47. At simple interest, ₹2000 becomes ₹2360 in 3 years. What is the annual rate of interest?

(A) 6% (B) 5% (C) 18% (D) 6.5%

Q48. Two parallel lines are cut by a transversal. The interior angles on the same side are in the ratio 2:7. What is the smaller of these angles?

(A) 140° (B) 40° (C) 20° (D) 70°

Q49. A cube has its top and bottom faces painted blue and the other faces red. It is cut into 27 equal small cubes. How many small cubes have both colours?

(A) 24 (B) 12 (C) 8 (D) 16

Q50. When -¾ is added to a rational number x, and the sum is divided by 2/3, the result is 9/8. What is x?

(A) 0 (B) 3/4 (C) 39/16 (D) 3/2

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