IMO-Style · Original Practice Content

Class 5 | Mathematics Olympiad

40 Questions · With Answer Key
Syllabax Olympiad Series
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Instructions: Each question has one correct answer. Choose the best option (A/B/C/D). Answer key is provided at the end. This paper is for practice only — not an official exam paper. Recommended time: **45 minutes**.

Q1. p and q are prime numbers and pq = 77. What is p + q?

A. 14 **B.** 16
C. 18 **D.** 20

Q2. A shopkeeper sells at 25% profit. The selling price is ₹750. What was the cost price?

A. ₹500 **B.** ₹560
C. ₹580 **D.** ₹600

Q3. What is the sum $1^2 + 2^2 + 3^2 + \ldots + 10^2$?

A. 330 **B.** 360
C. 385 **D.** 400

Q4. If 2x + 3y = 7 and 3x − y = 5, what is x + y?

A. 2 **B.** 3
C. 4 **D.** 5

Q5. A clock ticks 5 times in 4 seconds. How many seconds for 12 ticks? (Count intervals, not ticks)

A. 10 s **B.** 11 s
C. 12 s **D.** 13 s

Q6. How many trailing zeroes does 50! have?

A. 10 **B.** 11
C. 12 **D.** 14

Q7. In a GP, the 7th term is 192 and the common ratio is 2. What is the first term?

A. 2 **B.** 3
C. 4 **D.** 6

Q8. Two circles have areas in ratio 4:9. What is the ratio of their circumferences?

A. 2:3 **B.** 4:9
C. 4:6 **D.** 16:81

Q9. A ladder 13 m long leans against a wall with its foot 5 m from the base. How high up the wall does it reach?

A. 8 m **B.** 10 m
C. 12 m **D.** 14 m

Q10. What is $\sin^2 30° + \cos^2 45° + \tan^2 60°$?

A. 3 **B.** 15/4
C. 4 **D.** 17/4

Q11. How many 4-digit numbers have a digit sum equal to 2? (First digit ≥ 1)

A. 3 **B.** 4
C. 5 **D.** 6

Q12. Find x: 5^(x+1) = 125

A. 1 **B.** 2
C. 3 **D.** 4

Q13. A cone has base radius 7 cm and height 24 cm. What is its slant height?

A. 20 cm **B.** 23 cm
C. 25 cm **D.** 27 cm

Q14. For what value of n does the sum of first n natural numbers equal 55?

A. 8 **B.** 9
C. 10 **D.** 11

Q15. In how many ways can 5 people be seated in a row?

A. 60 **B.** 90
C. 100 **D.** 120

Q16. A fair coin is tossed 3 times. What is the probability of getting AT LEAST one head?

A. 3/4 | **B.** 5/8 | **C.** 7/8 | **D.** 1

Q17. What is the area of an equilateral triangle with side 12 cm?

A. $36\sqrt{3}$ cm² | **B.** $48\sqrt{3}$ cm² | **C.** $54\sqrt{3}$ cm² | **D.** $72\sqrt{3}$ cm²

Q18. A sum invested at 5% p.a. simple interest amounts to ₹1260 in 4 years. What was the principal?

A. ₹900 | **B.** ₹950 | **C.** ₹1000 | **D.** ₹1050

Q19. Find the 4th proportional to 2, 5, and 8. (If 2:5 = 8:x, find x)

A. 16 | **B.** 18 | **C.** 20 | **D.** 22

Q20. The diagonals of a rhombus are 24 cm and 10 cm. What is its perimeter?

A. 40 cm | **B.** 48 cm | **C.** 50 cm | **D.** 52 cm

Q21. What is the LCM of $2^3 \times 3^2$ and $2^2 \times 3^3$?

A. 108 | **B.** 144 | **C.** 192 | **D.** 216

Q22. In how many ways can a cricket team of 11 be chosen from 15 players?

A. 455 | **B.** 780 | **C.** 1001 | **D.** 1365

Q23. The quadratic $x^2 - 5x + 6 = 0$ has roots. What are they?

A. 2 and 4 | **B.** 2 and 3 | **C.** 3 and 4 | **D.** 1 and 5

Q24. A train covers 360 km. If it were 15 km/h faster, it would take 3 fewer hours. What is the original speed?

A. 20 km/h
B. 25 km/h
C. 30 km/h
D. 40 km/h

Q25. What is the value of (1+1/1)(1+1/2)(1+1/3)...(1+1/9)?

A. 9
B. 10
C. 11
D. 12

Q26. A rectangle has diagonal 10 cm and perimeter 28 cm. What is its area?

A. 40 cm^2
B. 44 cm^2
C. 48 cm^2
D. 52 cm^2

Q27. What is the angle between the hour and minute hands of a clock at 2:20?

A. 40°
B. 50°
C. 60°
D. 70°

Q28. What is the remainder when (2^{100} + 3^{100}) is divided by 5?

A. 0
B. 1
C. 2
D. 3

Q29. A boat travels upstream at 8 km/h and downstream at 12 km/h. What is the speed of the current?

A. 1 km/h
B. 2 km/h
C. 3 km/h
D. 4 km/h

Q30. What is the product of all divisors of 12?

A. 288
B. 576
C. 1728
D. 144

Q31. A right triangle has legs in ratio 3:4 and hypotenuse 25 cm. What is its area?

A. 120 cm^2
B. 135 cm^2
C. 150 cm^2
D. 175 cm^2

Q32. In a GP, the 3rd term is 18 and the 6th term is 486. What is the common ratio?

A. 2 **B.** 3
C. 4 **D.** 6

Q33. What is the units digit of 3^47?

A. 1 **B.** 3
C. 7 **D.** 9

Q34. A hollow cylinder has outer radius 8 cm, inner radius 6 cm, length 7 cm. What is the volume of material? (π = 22/7)

A. 528 cm^3 **B.** 572 cm^3
C. 616 cm^3 **D.** 660 cm^3

Q35. 35 students play at least one sport. Cricket: 22, Football: 18, Basketball: 15; C∩F: 10, F∩B: 8, C∩B: 7, all three: 5. How many play ONLY Basketball?

A. 3 **B.** 4
C. 5 **D.** 6

Q36. The mean of 20 observations is 15. The 12 above-mean values have mean 20. What is the mean of the remaining 8?

A. 6 **B.** 7
C. 7.5 **D.** 8

Q37. What is 1/4 + 1/12 + 1/24 + 1/40 + 1/60? (Express as a fraction)

A. 1/3 **B.** 5/12
C. 1/2 **D.** 7/12

Q38. A trapezium has parallel sides 18 cm and 12 cm, and height 8 cm. What is its area?

A. 100 cm^2 **B.** 110 cm^2
C. 120 cm^2 **D.** 130 cm^2

Q39. If today is Wednesday, what day of the week will it be after 100 days?

A. Monday **B.** Wednesday
C. Friday **D.** Sunday

Q40. A number when divided by 3, 4, 5 gives remainders 2, 3, 4 respectively. What is the smallest such number?

A. 49

B. 55

C. 59

D. 63

Answer Key

Q1: C Q2: D Q3: C Q4: B Q5: B Q6: C Q7: B Q8: A Q9: C Q10: B

Q11: B Q12: B Q13: C Q14: C Q15: D Q16: C Q17: A Q18: D Q19: C

Q20: D Q21: D Q22: D Q23: B Q24: C Q25: B Q26: C Q27: B Q28: C

Q29: B Q30: C Q31: C Q32: B Q33: C Q34: C Q35: C Q36: C Q37: B

Q38: C Q39: C Q40: C