

Class 4 | Mathematics Olympiad

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. $(5/8 \text{ of } 480) + (3/4 \text{ of } 96) = ?$

A. 360

B. 366

C. 372

D. 378

Q2. A shopkeeper bought an item for ₹480 and sold it for ₹576. What is the profit percentage?

A. 15%

B. 18%

C. 20%

D. 25%

Q3. What is the 20th term of the arithmetic sequence 3, 7, 11, 15, ...?

A. 73

B. 75

C. 77

D. 79

Q4. Two numbers are in ratio 7:5. Their sum is 132. What is their difference?

A. 16

B. 18

C. 20

D. 22

Q5. $0.7 \times 0.7 - 0.3 \times 0.3 = ?$

A. 0.28

B. 0.36

C. 0.40

D. 0.44

Q6. Pipe A fills a tank in 4 h, B in 6 h, and C drains it in 3 h. All three open together — how many hours to fill the tank?

A. Fills in 8 h

B. Fills in 12 h

C. Fills in 16 h

D. It empties

Q7. The product of two consecutive even numbers is 168. What are the two numbers?

A. 10 and 12

B. 12 and 14

C. 14 and 16

D. 8 and 10

Q8. In how many ways can 3 students be selected from a group of 7?

A. 21

B. 28

C. 35

D. 42

Q9. A cube has volume 343 cm^3 . What is its surface area?

A. 245 cm^2

B. 264 cm^2

C. 288 cm^2

D. 294 cm^2

Q10. Express 0.125 as a fraction in lowest terms.

A. $1/4$

B. $1/6$

C. $1/8$

D. $1/10$

Q11. The mean of 8 numbers is 15. One number is replaced by 23 and the new mean is 16. What number was replaced?

A. 11

B. 13

C. 15

D. 17

Q12. Simplify: $(3/4 \div 9/16) \times (2/3)$

A. $2/3$

B. $3/4$

C. $8/9$

D. $4/3$

Q13. Runner A covers 5 km in 20 minutes. Runner B runs at 12 km/h. Who is faster and by how much?

A. A by 1 km/h

B. A by 2 km/h

C. A by 3 km/h

D. B by 2 km/h

Q14. Of 100 students, 60 like Cricket, 50 like Football, 30 like both. How many like NEITHER?

A. 10

B. 15

C. 20

D. 25

Q15. A metal cube of side 10 cm is melted into small cubes of side 2 cm. How many small cubes are formed?

A. 50

B. 75

C. 100

D. 125

Q16. Find the next term: $1/2, 2/3, 3/4, 4/5, \dots$

A. $5/7$

B. $5/6$

C. $6/7$

D. $7/8$

Q17. If $x + 1/x = 3$, what is $x^2 + 1/x^2$?

A. 5

B. 7

C. 9

D. 11

Q18. What is the sum of all integers from -50 to 50?

A. -50

B. 0

C. 50

D. 2550

Q19. Two numbers are in ratio 6:5. Their difference is 18. What is the larger number?

A. 72

B. 90

C. 108

D. 126

Q20. A circle is inscribed in a square of side 14 cm. What area is NOT covered by the circle? ($\pi = 22/7$)

A. 28 cm^2

B. 35 cm^2

C. 42 cm^2

D. 49 cm^2

Q21. How many 3-digit palindrome numbers exist? (A number that reads same forward and backward, e.g. 121)

A. 60

B. 70

C. 80

D. 90

Q22. The average of A, B, and C is 24. The average of A and B is 20. What is C?

A. 28

B. 30

C. 32

D. 36

Q23. What is the remainder when $100!$ is divided by 13?

A. 0

B. 1

C. 3

D. 12

Q24. Two numbers have HCF 8 and LCM 96. One number is 32. What is the other?

A. 16

B. 20

C. 24

D. 28

Q25. A can do a job in 10 days, B in 15 days. They work together for 2 days, then A leaves. How many more days does B need alone?

A. 6

B. 8

C. 10

D. 12

Q26. What is the units digit of 7^{53} ?

A. 1

B. 3

C. 7

D. 9

Q27. A cylinder has radius 7 cm and height 10 cm. What is its volume? ($\pi = 22/7$)

A. 1386 cm^3

B. 1540 cm^3

C. 1694 cm^3

D. 1848 cm^3

Q28. A positive number is such that its cube minus its square equals 6 times the number. What is that number?

A. 2

B. 3

C. 4

D. 5

Q29. Boys and girls in a class are in ratio 3:4. If 5 more boys join, the ratio becomes 1:1. How many girls are there?

A. 16

B. 18

C. 20

D. 24

Q30. What is the sum $1/(1 \times 2) + 1/(2 \times 3) + 1/(3 \times 4) + \dots + 1/(9 \times 10)$?

A. $7/10$

B. $8/10$

C. $9/10$

D. 1

Q31. A bag has 4 red and 6 blue balls. Two drawn without replacement. $P(\text{both red}) = ?$

A. $1/10$

B. $2/15$

C. $1/5$

D. $2/9$

Q32. Find x : $2^x = 128$

A. 5

B. 6

C. 7

D. 8

Q33. A shopkeeper marks an item 40% above cost, then gives a 20% discount. What is the actual profit %?

A. 8%

B. 10%

C. 12%

D. 14%

Q34. What is the sum of digits of 2^{10} ?

A. 5

B. 6

C. 7

D. 8

Q35. In how many ways can 4 different books be arranged on a shelf?

A. 8

B. 16

C. 24

D. 32

Q36. A train 300 m long crosses a telegraph post in 15 seconds. What is its speed in km/h?

A. 60

B. 66

C. 72

D. 78

Q37. The HCF of two numbers is 12 and their product is 2160. What is their LCM?

A. 120

B. 150

C. 180

D. 210

Q38. What is $(a + b)^2 - (a - b)^2$ equal to?

A. $2ab$

B. $4ab$

C. $a^2 - b^2$

D. $2a^2 + 2b^2$

Q39. What is the sum of the interior angles of a hexagon?

A. 540°

B. 600°

C. 720°

D. 900°

Q40. Find n such that $C(n, 2) = 28$.

A. 7

B. 8

C. 9

D. 10

Answer Key

Q1: C Q2: C Q3: D Q4: D Q5: C Q6: B Q7: B Q8: C Q9: D Q10: C
Q11: C Q12: C Q13: C Q14: C Q15: D Q16: B Q17: B Q18: B Q19: C
Q20: C Q21: D Q22: C Q23: A Q24: C Q25: C Q26: C Q27: B Q28: B
Q29: C Q30: C Q31: B Q32: C Q33: C Q34: C Q35: C Q36: C Q37: C
Q38: B Q39: C Q40: B