



# Nishant eAcademy

## CBSE Sample Paper Class 10 Mathematics 2023-24

Subject: Mathematics Class: 10 Maximum Marks: 80 Duration: 3 hours

Section A: Objective Type Questions (1 mark each)

1. Solve:  $3x + 5 = 20$
2. Simplify:  $(2a - 3b)^2$
3. Find the value of 'k' if  $4k + 5 = 17$
4. If the roots of a quadratic equation are  $(-2, 3)$ , find the equation.
5. Solve:  $2\sin^2\theta + 3\cos\theta = 1$

Section B: Short Answer Type Questions (2 marks each) 6. If a line passes through the points  $(2, 3)$  and  $(4, 7)$ , find its slope.

7. Find the value of 'p' if  $2p - 5$  is a factor of  $4p^2 - 5p - 6$ .
8. Prove that the opposite angles of a cyclic quadrilateral are supplementary.
9. Solve:  $2x^2 - 7x + 3 = 0$
10. In a right-angled triangle, if the hypotenuse is 10 cm and one side is 6 cm, find the length of the other side.

Section C: Long Answer Type Questions (3 marks each) 11. The sum of three consecutive odd integers is 69. Find the integers.

12. A ladder is placed against a wall. The top of the ladder reaches a height of 8 meters, and the base is 6 meters away from the wall. Find the length of the ladder.
13. Simplify:  $(2\sqrt{3} + \sqrt{5})^2 - (\sqrt{3} - \sqrt{5})^2$
14. Prove that  $\sqrt{5}$  is an irrational number.
15. Find the value of 'k' for which the equation  $2x^2 + kx + 3 = 0$  has equal roots.



Section D: Very Long Answer Type Questions (5 marks each) 16. A motorboat takes 4 hours to travel 96 km upstream and 3 hours to travel the same distance downstream. Find the speed of the boat in still water and the speed of the stream.

17. Using Euclid's division lemma, find the HCF of 135 and 225.

18. A bag contains 6 red balls, 4 green balls, and 5 blue balls. If a ball is drawn at random from the bag, find the probability of drawing a red ball.

19. Find the coordinates of the points of intersection of the line  $2x - y = 4$  and the circle  $x^2 + y^2 = 25$ .

20. Solve the pair of equations:  $2x + 3y = 10$   $4x - 5y = -1$