



# Nishant eAcademy

## CBSE Sample Paper Class 10 Mathematics 2021-22

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

Section A: Objective Type Questions (Each question carries 1 mark)

1. Simplify:  $\sqrt{(25 + 16)} - 3 \times 4$
2. If the circumference of a circle is 22 cm, find its diameter.
3. Find the value of k if  $3k + 5 = 17$ .
4. Solve the equation:  $2x - 5 = 13$
5. In triangle ABC, if  $\angle A = 60^\circ$  and  $\angle B = 45^\circ$ , find  $\angle C$ .
6. If the roots of the quadratic equation  $x^2 - 6x + k = 0$  are equal, find the value of k.
7. Find the value of  $\tan 45^\circ + \cot 30^\circ$ .
8. In an AP, if  $a = 5$  and  $d = 3$ , find the 15th term.
9. If  $\sin \theta = 1/2$ , find the value of  $\cos \theta$ .
10. The sum of two consecutive even numbers is 86. Find the numbers.

Section B: Short Answer Type Questions (Each question carries 2 marks) 11. Find the value of k for which the equation  $3x - 4 = kx - 7$  has infinitely many solutions.

12. If a dice is thrown, find the probability of getting a prime number.
13. Find the area of a trapezium whose parallel sides measure 8 cm and 12 cm, and the distance between them is 5 cm.
14. Solve the following system of equations:  $2x + y = 7$   $3x - 2y = 4$
15. A ladder is placed against a wall such that its base is 3 meters away from the wall and the ladder makes an angle of  $60^\circ$  with the ground. Find the length of the ladder.



Section C: Long Answer Type Questions (Each question carries 4 marks) 16. Prove that the opposite sides of a parallelogram are equal.

17. In  $\triangle ABC$ , if  $AB = 5$  cm,  $BC = 12$  cm, and  $\angle B = 90^\circ$ , find the length of  $AC$  using the Pythagorean theorem.

18. The sum of the first  $n$  terms of an arithmetic progression is given by  $S_n = 3n^2 + 5n$ . Find the 8th term of the AP.

19. If the roots of the quadratic equation  $px^2 - 5x + 6 = 0$  are equal, find the value of  $p$ .

20. A man sells an article at a profit of 20%. If the selling price is ₹1,200, find the cost price of the article.