CBSE Class 10 Mathematics — Practice Paper

Topics: Quadratic Equations · Trigonometry · Statistics | Total Marks: 35 | Suggested Time: 60 minutes

Instructions: This is an original practice paper created by CI Tutors for revision purposes — it does not reproduce any official CBSE question paper. Attempt all questions. Show full working for Sections B and C to build exam-ready answer-writing habits.

Section A — Multiple Choice Questions (1 mark each)

1. The roots of the equation $x^2 - 7x + 12 = 0$ are: [1]

(a) 3, 4
(b) 2, 6
(c) 1, 12
(d) –3, –4

2. If $\sin\theta = 3/5$, then $\cos\theta$ equals ($0° < \theta < 90°$): [1]

(a) 4/5
(b) 5/4
(c) 3/4
(d) 5/3

3. The discriminant of $2x^2 + 4x + 1 = 0$ is: [1]

(a) 8
(b) 16
(c) 24
(d) 4

4. The mean of 5 numbers is 18. If one number is removed, the mean of the remaining 4 becomes 16. The removed number is: [1]

(a) 20
(b) 24
(c) 26
(d) 22

5. The value of $(\sin^2 30° + \cos^2 30°)$ is: [1]

(a) 0
(b) 1
(c) 2
(d) 1/2

Section B — Short Answer Questions (2 marks each)

6. Solve for x: $x^2 - 5x - 14 = 0$, by factorisation. [2]

7. Evaluate: $2\tan^2 45° + \cos^2 30° - \sin^2 60°$ [2]

8. Find the nature of roots of the equation $3x^2 - 2x + 1/3 = 0$ (without solving). [2]

9. Find the median of the data: 12, 15, 9, 21, 18, 14, 11. [2]

10. If one root of $x^2 - kx + 18 = 0$ is 3, find the value of k and the other root. [2]

Section C — Long Answer Questions (5 marks each)

11. A train travels a distance of 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Form a quadratic equation and find the original speed of the train. [5]

12. From the top of a 60 m high building, the angle of depression of a car on the ground is observed to be 30°. Find the distance of the car from the base of the building. (Use $\sqrt{3} = 1.732$) [5]

13. The following table shows the marks obtained by 40 students in a test. Find the mean using the step-deviation method. [5]

Marks	0–10	10–20	20–30	30–40	40–50
Students	5	8	15	7	5

Answer Key

1. (a) 3, 4

2. (a) 4/5

3. (a) 8

4. (c) 26

5. (b) 1

6. x = 7, x = –2

7. 2(1) + 3/4 – 3/4 = 2

8. Discriminant = 4 – 4 = 0 → equal real roots

9. Median = 14

10. k = 9, other root = 6

11. Original speed = 40 km/h

12. Distance = 60√3 ≈ 103.9 m

13. Mean = 24.75 (using assumed mean A = 25, h = 10)