

CBSE Classes IX–X — Maths Sectionals

PRACTICE PAPER

Exam: CBSE Classes IX–X Mathematics (NCERT)

Time: 60 minutes

Max. marks: 40

Questions: 25

NAME

ROLL NO. / DATE

Instructions

- Section A: 20 MCQs × 1 mark. Section B: 5 short-answer questions × 4 marks — show all steps.
- Topics: number systems, polynomials, linear equations, quadratics, AP, triangles, coordinate geometry, trigonometry, mensuration, statistics & probability.

SECTION A — MULTIPLE CHOICE (1 MARK EACH)

- Which of the following is irrational?
(A) $\sqrt{49}$ (B) 0.333...
(C) $\sqrt{3}$ (D) $22/7$
- HCF × LCM of two numbers 12 and 18 equals
(A) 36 (B) 216
(C) 72 (D) 6
- The zeroes of $x^2 - 5x + 6$ are
(A) 2 and 3 (B) -2 and -3
(C) 1 and 6 (D) -1 and 6
- Sum of zeroes of $2x^2 - 8x + 3$ is
(A) -4 (B) 4
(C) $3/2$ (D) 8
- The pair $2x + 3y = 5$, $4x + 6y = 10$ has
(A) a unique solution (B) no solution
(C) infinitely many solutions (D) exactly two solutions
- Discriminant of $x^2 + 4x + 5$ is
(A) -4 (B) 4
(C) 36 (D) 0
- The 10th term of the AP 3, 7, 11, ... is
(A) 39 (B) 43
(C) 40 (D) 37
- Sum of the first 20 natural numbers is
(A) 200 (B) 210
(C) 220 (D) 190

9. Distance between (0, 0) and (5, 12) is
 (A) 13 (B) 17
 (C) 7 (D) $\sqrt{119}$
10. Mid-point of (2, 4) and (6, 8) is
 (A) (4, 6) (B) (8, 12)
 (C) (3, 5) (D) (2, 2)
11. $\sin 30^\circ + \cos 60^\circ =$
 (A) 1 (B) $1/2$
 (C) $\sqrt{3}$ (D) 0
12. $\tan 45^\circ =$
 (A) 0 (B) 1
 (C) $\sqrt{3}$ (D) $1/\sqrt{3}$
13. $\sin^2\theta + \cos^2\theta =$
 (A) 0 (B) 1
 (C) 2 (D) $\tan \theta$
14. In $\triangle ABC$, $DE \parallel BC$ with $AD = 2$, $DB = 3$, $AE = 4$. Then $EC =$
 (A) 6 (B) 5
 (C) $8/3$ (D) 1.5
15. The tangent to a circle is _____ to the radius at the point of contact.
 (A) parallel (B) perpendicular
 (C) equal (D) inclined at 45°
16. Area of a triangle with sides 5, 12, 13 is
 (A) 30 (B) 60
 (C) 65 (D) 32.5
17. Volume of a sphere of radius 3 cm is
 (A) $36\pi \text{ cm}^3$ (B) $12\pi \text{ cm}^3$
 (C) $27\pi \text{ cm}^3$ (D) $108\pi \text{ cm}^3$
18. Curved surface area of a cylinder ($r = 7 \text{ cm}$, $h = 10 \text{ cm}$, $\pi = 22/7$) is
 (A) 440 cm^2 (B) 1540 cm^2
 (C) 220 cm^2 (D) 704 cm^2
19. Probability of getting a prime number on a fair die is
 (A) $1/3$ (B) $1/2$
 (C) $2/3$ (D) $1/6$
20. The mean of the first five odd numbers is
 (A) 5 (B) 6
 (C) 25 (D) 4

SECTION B — SHORT ANSWER (4 MARKS EACH)

21. Prove that $\sqrt{2}$ is irrational. [4 marks]

22. Solve: $2x^2 - 7x + 3 = 0$. [4 marks]

23. How many terms of the AP 9, 17, 25, ... must be taken to give a sum of 636? [4 marks]

24. Find the ratio in which the point $(-1, 6)$ divides the segment joining $(-3, 10)$ and $(6, -8)$. [4 marks]

25. From the top of a 75 m high lighthouse, the angle of depression of a ship is 30° . How far is the ship from the base? ($\sqrt{3} = 1.732$) [4 marks]

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