Mathematics

Practice Test Paper 9

(Chapter 8: Introduction to Trigonometry)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Unless stated otherwise, angles are acute. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. sin 90° is:

(A) 0 (B) 1

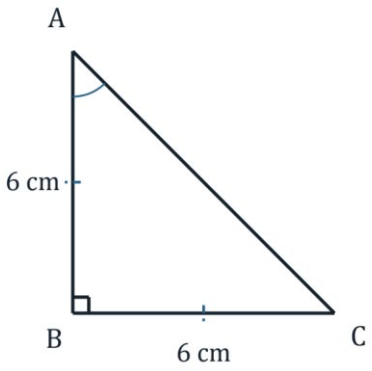
(C) not defined (D) $\frac{1}{2}$

2. The reciprocal of cos A is:

(A) cosec A (B) cot A

(C) tan A (D) sec A

3. The triangle shown has two equal perpendicular sides. Its value of cos A is:



(A) $\frac{1}{\sqrt{2}}$ (B) $\frac{1}{2}$

(C) 1 (D) $\sqrt{2}$

4. $\sin^2 45°$ equals:

(A) $\frac{1}{4}$ (B) 1

(C) $\frac{1}{2}$ (D) $\frac{1}{\sqrt{2}}$

5. If $\tan A = \frac{2}{3}$, then cot A equals:

(A) $\frac{2}{\sqrt{13}}$ (B) $\frac{3}{2}$

(C) $\frac{3}{\sqrt{13}}$ (D) $\frac{2}{3}$

SECTION B

(4 questions × 2 marks = 8 marks)

6. If $3\cot A = 4$, find $\frac{\text{cosec}^2 A+1}{\text{cosec}^2 A-1}$.

7. Evaluate $\frac{2\tan 30°}{1-\tan^2 30°}$.

8. If $\sin(3\theta) = \frac{\sqrt{3}}{2}$ and $0° < 3\theta < 90°$, find θ.

9. Prove that $\tan^2 A \cos^2 A = \sin^2 A$ (where defined).

SECTION C

(3 questions × 3 marks = 9 marks)

10. Prove that $(\sin A + \text{cosec}\, A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$ (where defined).

11. If $\sin A - \cos A = \frac{1}{5}$, find sin A cos A and $\sin^4$ A + $\cos^4$ A.

12. Use an equilateral triangle of side 2a and its altitude to derive cos 30° and tan 30°.

SECTION D

(Application Based Question - 3 marks)

13. A right-triangular frame ABC has ∠B = 90°, AB = 9 cm, BC = 40 cm and AC = 41 cm.

(i) Find cos A.

(ii) Find tan A.

(iii) Find cosec C.