Mathematics

Practice Test Paper 6

(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. $\sec 0°$ equals:

(A) 0 (B) 1

(C) not defined (D) 2

2. $\sin^2 30° + \cos^2 60°$ equals:

(A) 1 (B) $\frac{3}{4}$

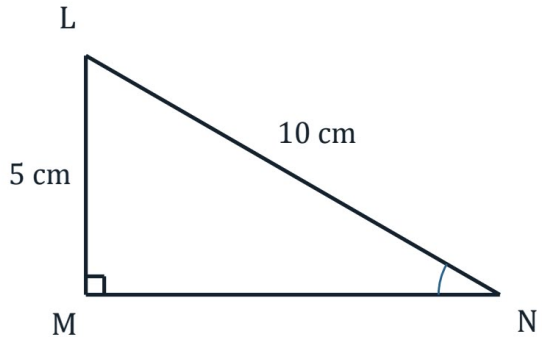
(C) $\frac{1}{2}$ (D) 2

3. Which is a possible value of cos A for an acute angle A?

(A) −0.2 (B) 1.2

(C) 0 (D) 0.6

4. In the right triangle LMN shown, ∠N equals:



(A) 30° (B) 45°

(C) 60° (D) 90°

5. If $\tan\theta = \frac{7}{24}$, then $\cot\theta$ equals:

(A) $\frac{7}{25}$ (B) $\frac{25}{24}$

(C) $\frac{24}{7}$ (D) $\frac{25}{7}$

SECTION B

(4 questions × 2 marks = 8 marks)

6. If $\sin\theta = \frac{7}{25}$, find cos θ and sec θ.

7. Evaluate $\frac{5\cos^2 60° + 4\sec^2 30° - \tan^2 45°}{\sin^2 30° + \cos^2 30°}$.

8. Prove that $\sec^4\theta - \sec^2\theta = \tan^4\theta + \tan^2\theta$ (where defined).

9. If $5\tan\theta = 4$, evaluate $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 2\cos\theta}$.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Given cot A = k, where k > 0, express sin A, sec A and tan A in terms of k.

11. Prove that $\sin^4 A - \cos^4 A = 2\sin^2 A - 1$ (where defined).

12. If $3\sin^2 A + 2\cos^2 A = \frac{11}{4}$, find A, tan A and sec A.

SECTION D

(Application Based Question - 3 marks)

13. A triangular panel ABC is right-angled at B, with AB = 60 cm and BC = 11 cm. A designer studies angle A.

(i) Find the hypotenuse.

(ii) Find sin A.

(iii) Find cos A.