

Mathematics
Practice Test Paper 2
(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 $\times$ 1 mark = 5 marks)

1. $\tan 45^\circ$ equals:

- | | |
|----------------|-------------------|
| (A) 0 | (B) 1 |
| (C) $\sqrt{3}$ | (D) $\frac{1}{2}$ |

2. Which value is impossible for the sine of an acute angle?

- | | |
|-------------------|--------------------------|
| (A) $\frac{3}{5}$ | (B) $\frac{1}{2}$ |
| (C) $\frac{4}{3}$ | (D) $\frac{\sqrt{3}}{2}$ |

3. If $\cos \theta = \frac{12}{13}$, then $\sec \theta$ equals:

- | | |
|---------------------|--------------------|
| (A) $\frac{13}{12}$ | (B) $\frac{5}{13}$ |
| (C) $\frac{12}{5}$ | (D) $\frac{13}{5}$ |

4. $\operatorname{cosec}^2 A - \cot^2 A$ is:

- | | |
|--------|-------|
| (A) -1 | (B) 0 |
| (C) 2 | (D) 1 |

5. As an acute angle increases towards 90° , its cosine:

- (A) increases
(B) decreases
(C) remains constant
(D) becomes greater than 1

SECTION B

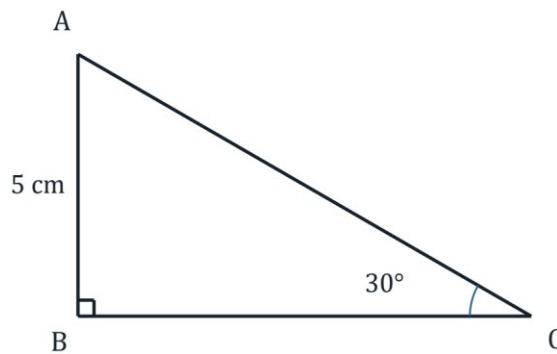
(4 questions $\times$ 2 marks = 8 marks)

6. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.
7. Evaluate $2\tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$.
8. A student claims that $\sin(A + B) = \sin A + \sin B$ for all acute A and B . Disprove this using $A = B = 30^\circ$.
9. Prove that $(\sec A - \tan A)(\sec A + \tan A) = 1$ (where defined).

SECTION C

(3 questions $\times$ 3 marks = 9 marks)

10. In the right triangle shown, find BC and AC . Then state $\tan C$.



11. Prove that $\frac{\cos A}{1+\sin A} + \frac{1+\sin A}{\cos A} = 2\sec A$ (where defined).
12. If $\sec \theta + \tan \theta = 5$, find $\sec \theta$, $\tan \theta$ and $\cos \theta$.

SECTION D

(Application Based Question - 3 marks)

13. A right triangle PQR has $\angle Q = 90^\circ$, $PR = 10$ cm and $PQ = 5$ cm.
- (i) Find $\angle P$.
- (ii) Find $\angle R$.
- (iii) Find QR .