Mathematics

Practice Test Paper 2

(Chapter 9: Some Applications of 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. Give exact answers unless stated otherwise. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. The line joining an observer's eye to the object being viewed is called the:

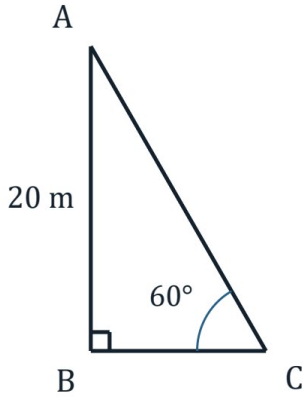
(A) line of sight

(B) horizontal line

(C) vertical line

(D) shadow line

2. In the diagram, AB is a 20 m tower and BC is its shadow. When the Sun's elevation is 60°, BC equals:



(A) 20 m

(B) $20\sqrt{3}$ m

(C) $\frac{20\sqrt{3}}{3}$ m

(D) 40 m

3. A 6 m vertical rod has a shadow of length $2\sqrt{3}$ m on level ground. The Sun's elevation is:

(A) 45°

(B) 30°

(C) 60°

(D) 90°

4. An observer's eye is 1.5 m high, 20.5 m from a 22 m tower. The elevation of its top is:

(A) 30° (B) 45°

(C) 60° (D) 90°

5. From a fixed point on level ground, the elevation of a tower is 30°. If its height is tripled, the new elevation is:

(A) 90° (B) 45°

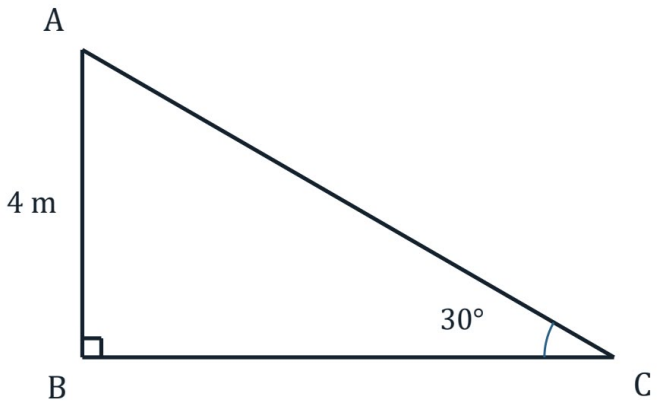
(C) 30° (D) 60°

SECTION B

(4 questions × 2 marks = 8 marks)

6. A 6 m tree trunk is supported by a taut chain tied to its top. The chain makes an angle of 60° with the vertical trunk. Find its length.

7. A 4 m high platform AB is reached by a straight ramp AC inclined at 30° to level ground BC. Find the ramp length and its horizontal run.



8. A lighthouse is 45 m above sea level. A boat is seen from its top at a depression angle of 45°. Find the horizontal distance to the boat and the line-of-sight distance.

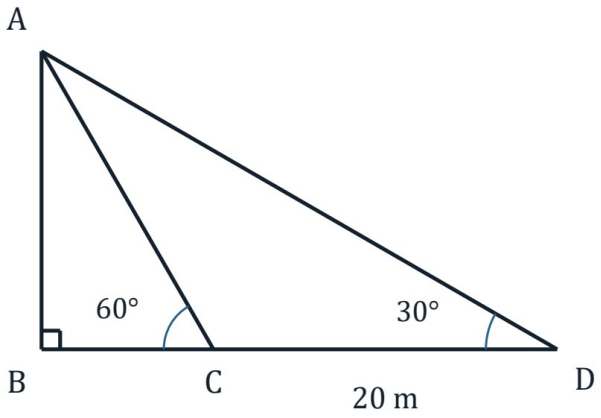
9. A vertical pole of height h stands on level ground. An observation point is at distance d from its foot. Express h and the line-of-sight distance to the top in terms of d when the elevation is 60°.

SECTION C

(3 questions × 3 marks = 9 marks)

10. A 1.6 m statue stands on a pedestal. From a ground point, the elevations of the pedestal's top and the statue's top are 45° and 60°. Find the pedestal height.

11. A is the top of a TV tower AB beside a canal. C is directly across the canal; D is 20 m farther away on the line BC. Using the marked elevations, find the canal's width and the tower's height.

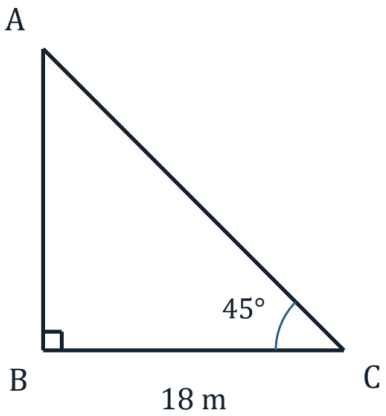


12. Two ships lie on the same side of a 75 m lighthouse, one directly behind the other. Their depression angles from its top are 30° and 45°. Find the distance between them.

SECTION D

(Application Based Question - 3 marks)

13. A surveyor at C views the top A of a vertical monument AB at 45°. The ground distance BC is 18 m.



(i) Find the monument's height.

(ii) Find the line-of-sight distance AC.

(iii) Find the depression angle from A to C.