Mathematics

Practice Test Paper 1

(Chapter 9: Some Applications of Trigonometry)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

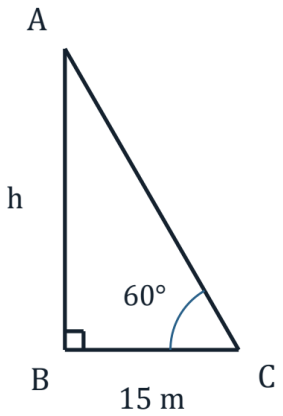
General Instructions

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. In the diagram, AB is a vertical tower and BC is level ground. The height AB is:



(A) $15\sqrt{3}$ m
(B) 15 m
(C) $5\sqrt{3}$ m
(D) 30 m

2. The angle of depression is measured between the line of sight and:

(A) the vertical through the observer

(B) the horizontal through the observer

(C) the ground at the object

(D) the vertical through the object

3. A pole and its shadow on level ground have equal lengths. The elevation of the Sun is:

(A) 30°
(B) 60°
(C) 90°
(D) 45°

4. A 10 m ladder makes an angle of 30° with level ground. Its vertical reach is:

(A) 10 m (B) $5\sqrt{3}$ m
(C) 5 m (D) 20 m

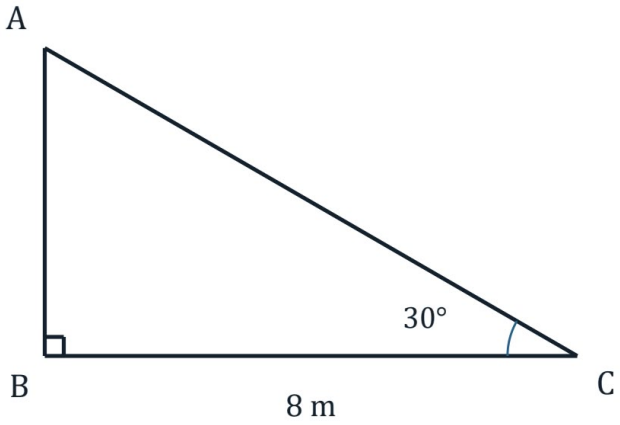
5. A bird is observed at an angle of elevation of 60°. From the bird, the angle of depression of the observer is:

(A) 30° (B) 60°
(C) 45° (D) 90°

SECTION B

(4 questions × 2 marks = 8 marks)

6. AB is the unbroken part of a tree and AC is its broken part, which touches level ground at C. Find the original height of the tree.



7. A kite is 60 m vertically above level ground. Its taut string is tied to a point on the ground and makes an angle of 60° with it. Find the string length.

8. An observer's eye is 1.5 m above level ground, 28.5 m from a chimney. The elevation of its top is 45°. Find the chimney's height.

9. A 12 m pole casts a shadow on level ground when the Sun's elevation is 30°. Find the shadow length.

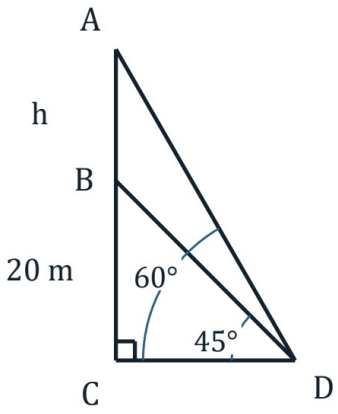
SECTION C

(3 questions × 3 marks = 9 marks)

10. The shadow of a tower is 40 m longer when the Sun's elevation is 30° than when it is 60°. Find the tower's height and the shorter shadow.

11. From the top of a tower, a car approaching its foot is seen at depression angles 30° and then 60°, 6 seconds apart. At constant speed, how much longer will the car take to reach the foot?

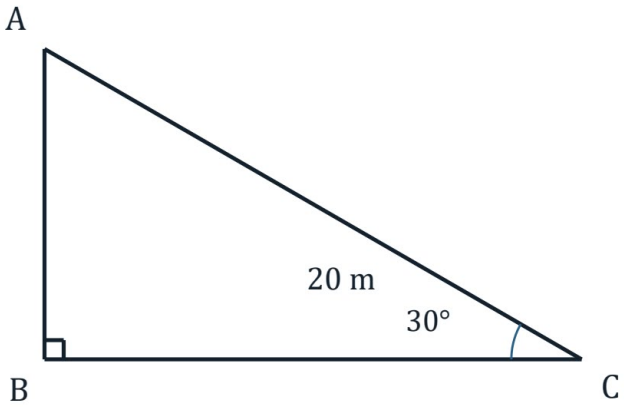
12. AB is a transmission tower on a 20 m building BC. From D on level ground, the elevations of B and A are 45° and 60°. Find AB.



SECTION D

(Application Based Question - 3 marks)

13. A tent is supported by a taut 20 m rope AC tied from the top A of a vertical pole AB to level ground at C, as shown.



(i) Find the height of the pole.

(ii) Find the distance from the pole's foot to the peg.

(iii) Find the angle between the rope and the pole.