CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-X

Subject: MATHEMATICS

Chapter Name : Heights & Distances (Chap : 9)

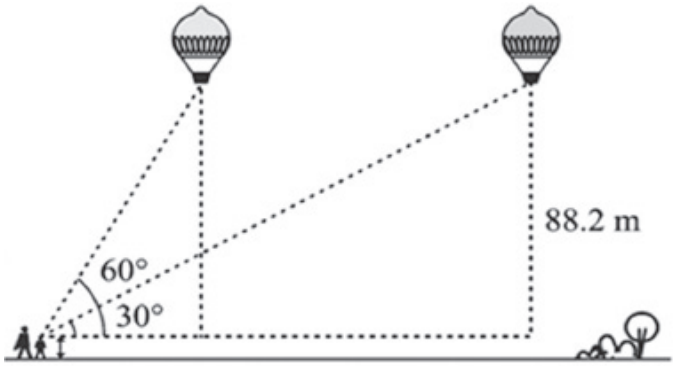
Total : 4 Marks (expected) [CBQ(1)-4 Marks]

Level - 1

Case Based Question (CBQ) :

Case Study - 1

1. A 1.2 m tall girl spots a balloon moving with the wind in a horizontal line at a height of 88.2 m from the ground. The angle of elevation of the balloon from the eyes of the girl at any instant is 60°. After 30 seconds, the angle of elevation reduces to 30° (see the below figure).



Based on the above information, answer the following questions. (Take $\sqrt{3} = 1.732$)

(i) Find the distance travelled by the balloon during the interval.

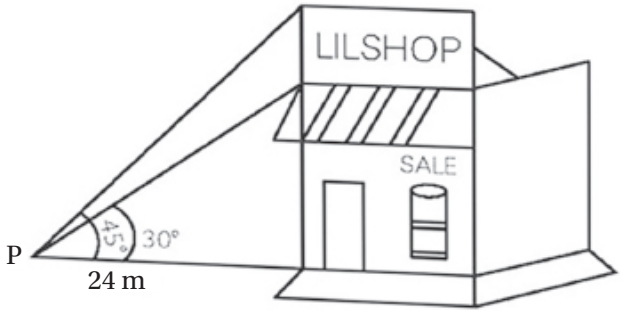
(ii) (A) Find the speed of the balloon.

OR

(ii) (B) If the elevation of the sun at a given time is 30°, then find the length of the shadow cast by a tower of 150 feet height at that time.

Case Study - 2

2. Anita purchased a new building for her business. Being in the prime location, she decided to make some more money by putting up an advertisement sign for a rental ad income on the roof of the building. From a point P on the ground level, the angle of elevation of the roof of the building is 30° and the angle of elevation of the top of the sign board is 45°. The point P is at a distance of 24 m from the base of the building.



On the basis of the above information, answer the following questions :

(i) Find the height (integral value) of the building (without the sign board).

(ii) Find the distance of the point P from the top of the sign board.

(iii) (A) Find the height of the building (with the sign board).

OR

(iii) (B) Find the height of the sign board.

3. Suppose a straight vertical tree is broken at some point due to storm and the broken part is inclined at a certain distance from the foot of the tree.

Based on the above information, solve the following questions :

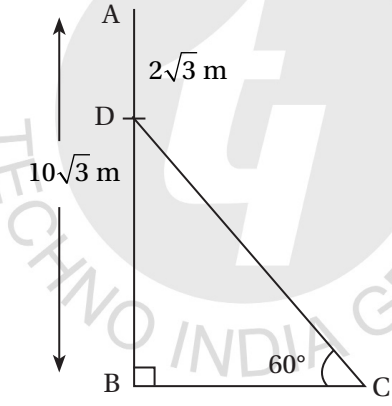
(i) If the top of upper part of broken tree touches ground at a distance of 30 m (from the foot of the tree) and makes an angle of inclination 30°, then find the height of remaining part of the tree.

(ii) Find the height of the straight vertical tree.

(iii) (A) If the height of a tree is 6 m, which is broken by wind in such a way that its top touches the ground and makes an angle 30° with the ground. Find the length of broken part of the tree.

OR

(iii) (B) If AB = $10\sqrt{3}$ m and AD = $2\sqrt{3}$ m, then find CD.



ANSWER

1. (i) 100.46 m (ii) (A) 3.35 m/s OR (ii) (B) 259.8 ft.

2. (i) 14 m (ii) $24\sqrt{2}$ m (iii) (A) 24 m OR (iii) (B) 10 m.

3. (i) $10\sqrt{3}$ m (ii) $30\sqrt{3}$ m (iii) (A) 4 m OR (iii) (B) 16 m.