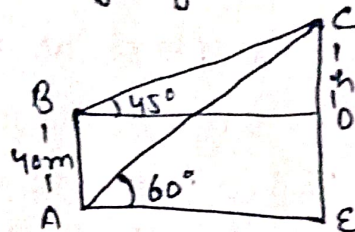


1. Amrita stood near the base of a lighthouse, gazing up at its towering height. She measured the angle of elevation to the top and found it to be 60° . Then, she climbed a nearby observation deck, 40m higher than her original position and noticed the angle of elevation to the top of lighthouse to be 45° .



(i) If CE is h metres, find the distance BO in term of ' h '

(ii) Find distance BC in term of ' h '

(iii) Find distance AE , If $AC = 100\text{m}$

(CBSE-2025)

2. Two ships are sailing in the sea on either side of a lighthouse. The angle of depression to the two ships as observed from the top of the lighthouse are 60° and 45° respectively. If the distance b/w the ships is $100\left(\frac{1+\sqrt{3}}{\sqrt{3}}\right)\text{m}$, then find the height of the lighthouse

(CBSE-2025)

3. The angle of depressions of the top and the bottom of an 8 m tall building from the top of another multistoried building 30° and 45° respectively. Find the height of building and distance b/w the two building

(CBSE-2025)

4. A drone was used to facilitate movement of an ambulance on the straight highway to a point P on the ground where there was an accident. The ambulance was travelling at the speed of 60 km/h . The drone stopped at a point Q , 100m vertically above the point P . The angle of depression of the ambulance was found to be 30° at a particular instant.

(i) Represent the above situation help of diagram

(ii) Find the distance b/w the ambulance and the site of accident (P) at the particular instant

(iii) Find the time in which angle of depression change from 30° to 45°

(CBSE-2025)

5. Passenger boarding stairs, sometimes referred to as boarding ramps. Stair car or aircraft steps, provides a mobile means to travel b/w the aircraft doors and the ground. Larger aircraft have door sills 5 to 20 feet (1 foot = 30 cm) high. Stairs facilitate safe boarding and de-boarding.

An aircraft has a door still at a height of 15 feet above the ground.

A stair car is placed at a horizontal distance of 15 feet from the plane.

- (i) find the angle at which stairs are inclined to reach the door still 15 feet high above the ground.
- (ii) find the length of stairs used to reach the door still.
- (iii) If the 20 feet long stairs is inclined at an angle of 60° to reach the door sill then find the height of the door sill above the ground ($\sqrt{3} = 1.732$) (CBSE-2025)

6. A pole 6m high is fixed on the top of a tower. The angle of elevations of the top of the pole observed from a point P on the ground is 60° and the angle of depression of the point P from the top of the tower is 45° . find the height of the tower and the distance of point P from the foot of the tower (CBSE(2024))

7. from the top of a 45m high light house, the angle of depression of two ships, on the opposite side of it, are observed to be 30° and 60° . If the line joining the ships passes through the foot of the light house. find the distance b/w the ships ($\sqrt{3} = 1.73$) (CBSE-2024)

8. Two pillars of equal length stand on either side of a road which is 100m wide, exactly opposite to each other. At a point on the road b/w the pillars. the angle of elevation of the tops of the pillars are 60° and 30° . find the length of each pillar and distance of the point on the road from the pillar ($\sqrt{3} = 1.73$) (CBSE-2024)

9. from a point on a bridge across the river, the angles of depression of the banks on opposite sides of the river are 30° and 60° . If the bridge is at a height of 4m from the bank, find the width of the river (CBSE-2024)

10. A ladder set against a wall at an angle 45° to the ground. If the foot of the ladder is pulled away from the wall through a distance 4m its top slides a distance of 3m down the wall making an angle 30° with the ground. Find the final height of the top of the ladder from the ground and length of the ladder. (cbse-2023)

11. A box has two windows
As observed from the top of a 75m high lighthouse from the sea-level the angle of depression of two ship are 30° and 60° . If one ship is exactly behind the other on the same side of the house of light. Find the distance b/w the two ship (cbse-2023)

12. From a point on the ground, the angle of elevation of the bottom and top of a transmission tower fixed at the top of 30m high building are 30° and 60° . Find the height of the transmission tower (cbse-2023)

13. From the top of a 7m high building the angle of elevation of the top of a cable tower is 60° and angle of depression of its foot is 30° . Find height of tower (cbse-2023)

14. A straight highway leads to the foot of a tower. A man standing on the top of the 75m high tower observes two cars at angles of depression of 30° and 60° , which are approaching the foot of the tower. If one car is exactly behind the other on the same side of the tower, find the distance the two car (use $\sqrt{3}=1.73$) (cbse-2023)