1. A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle 45° with it. The distance between the foot of the tree to the point where the top touches the ground is 7 m. Find the height of the tree.

2. A 1.5 m tall boy is standing at some distance from a 40 m tall building. The angle of elevation from his eyes to the top of the building increases from 30° to 45° as he walks towards the building. Find the distance he walked towards the building.

3. From a point on the ground, the angles of elevation of the bottom and the top of a transmission tower fixed at the top of a 25 m high building are 30° and 45° respectively. Find the height of the transmission tower.

4. A statue, 2 m tall, stands on a top of a pedestal, from a point on the ground, the angle of elevation of the top of the statue is 60° and from the same point the angle of elevation of the top of the pedestal is 30°. Find the height of the pedestal.

5. The angle of elevation of the top of a building from the foot of the tower is 45° and the angle of elevation of the top of the tower from the foot of the building is 60°. If the tower is 55 m high, find the height of the building.

6. Two poles of equal heights are standing opposite each other on either side of the road, which is 75 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 45° and 30°, respectively. Find the height of poles and the distance of the point from the poles.

7. From the top of a 8 m high building, the angle of elevation of the top of a cable tower is 45° and the angle of depression of its foot is 30°. Determine the height of the tower.

8. As observed from the top of a 60 m high lighthouse from the sea-level, the angles of depression of two ships are 45° and 60°. If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two ships.