# Practice Challenge - Subjective

Subject: Mathematics

Topic : Some Applications of
Trignometry Exam Prep 1

Class: X

1. Two poles are erected from the ground. The length of the longer pole is 10m. If the distance between the tips of the poles is 6m, and the angle of elevation of the tip of the longer pole from that of the shorter pole is $30°$, find the length of the second pole.

2. A circus artist is climbing a 20 m long rope, which is tightly stretched and tied from the top of a vertical pole to the ground. Find the height of the pole, if the angle made by the rope with the ground level is $30°$.
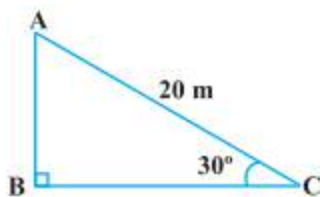
3. A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle 30° with it. The distance between the foot of the tree to the point where the top touches the ground is 8 m. Find the height of the tree.

4. A 1.5 m tall boy is standing at some distance from a 30 m tall building. The angle of elevation from his eyes to the top of the building increases from $30° \ to \ 60°$ as he walks towards the building. Find the distance he walked towards the building.

5. A TV tower stands vertically on a bank of a canal. From a point on the other bank directly opposite the tower, the angle of elevation of the top of the tower is $60°$. From another point 20 m away from this point on the line joining this point to the foot of the tower, the angle of elevation of the top of the tower is $30°$. Find the height of the tower and the width of the canal.
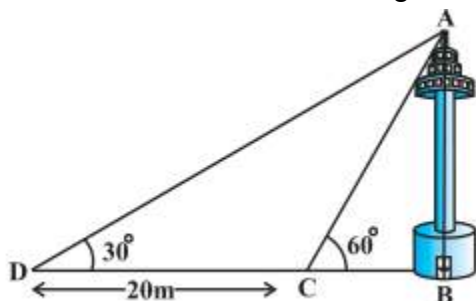
6. From the top of a 7 m high building, the angle of elevation of the top of a cable tower is $60°$ and the angle of depression of its foot is $45°$. Determine the height of the tower.

7. A window of a house is h m above the ground. Form the window, the angles of elevation and depression of the top and the bottom of another house situated on the opposite side of the lane are found to be α and β, respectively. Prove that the height of the other house is $h(1 + tan\ \alpha\ cot\ \beta)m$.

8. 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 some time, the angle of elevation reduces to $30°$. Find the distance travelled by the balloon during the interval.