

MATHEMATICS

Angle of Elevation and Depression

1. A ladder 30m long rests against a vertical wall. If the ladder makes an angle of 63° with the wall, find the distance between the foot of the ladder and the wall
2. A boy observes that the angle of elevation of the top of a tower is 32° . He then walks 8m towards the tower and then discovers that the angle of elevation is 43° . Find the height of the tower.
3. The angle of elevation of the top of a house from the bottom of a tower 160m high is 26° . From the top of the

tower the angle of elevation is 24° , What is the height of the house if the tower and the house are 50m apart?

4. A boy standing 70m away from a flag-post observes that the angles of elevation of the top and bottom of a tower on top of the flag-post are 57° and 69° respectively. Find the height of the tower.

5. From a horizontal distance of 10.5km, a pilot observes that the angles of depression of the top and base of a control tower are 36° and 41° respectively,. Calculate

a. The shortest distance between the pilot and the base of the control tower

6. A measuring instrument is used at points P and Q on the same horizontal level to measure the angle of elevation of the top T of a hill. Given that P is 5200m above sea level. $PQ = 4000\text{m}$ and the angles of elevation of P and Q are 15° and 35° respectively, calculate the height of the mountain. (Take $\tan 15^\circ = 0.3$ and $\tan 35^\circ = 0.7$)

7. A flagpole and a building stand on the same horizontal level. From the point P at the bottom of the building, the angle of elevation of the top T of the flagpole is 65° . From the top Q of the building the angle of elevation of the point T is 25° . If the building is 20m high, calculate the

(a) distance PT .

(b) height of the flagpole.

(c) distance QT .