

Angles of Elevation and Depression

(a) Mercy stands 50 m away from the foot of a tower. When she looks to the top of the tower, the angle of elevation is 41° . Find the height of the tower.

(b) Rob is a passenger on a boat. The boat is 450 m from the foot of a cliff, which is 110 m high. Find the angle of elevation of the top of the cliff from the boat.

(c) Talha is on plane, looking down at the airport with an angle of depression of 36° . The height of the plane from the ground is 5 km . Find the distance from the plane to the airport.

(d) A pigeon flies down to the ground from the top of a tree at an angle of depression of 28° . The distance the pigeon flies is 15.8 m . How tall is the tree?

(e) Salisbury cathedral spire is 123 m tall. Guy stands 46 m from the cathedral spire. What is the angle of elevation of the top of the spire from where Guy is standing?

(f) A plane passes overhead at a height of 8000 m . A short time later, it is at an angle of elevation of 71° . How far away is the plane from its original position?

(g) A prison officer watches prisoners from a guard tower which is 10.5 m tall. He looks due North and can see two prisoners. The angle of depression of each of the prisoners is 18° and 23° . How far apart along the ground are the two prisoners?

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