Chapter-Some Applications of Trigonometry

Q1.

From the top of a 7 m high building, the angle of elevation of the top of a tower is 60° and the angle of depression of the foot of the tower is 30°. Find the height of the tower

Q2.

A vertical pedestal stands on the ground and is surmounted by a vertical flagstaff of height 5 m. At a point on the ground, the angles of elevation of the bottom and the top of the flagstaff

Q3.

A man standing on the bank of a river observes that the angle of elevation of the top of a tree standing on the opposite bank is 60°. When he moves 40 metres away from the bank, he finds the angle of elevation to be 30°. Find the height of the tree.

Q4.

Let CD be the building of height h and AB be the tower of height 50 m.

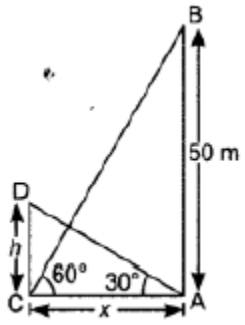
In ΔBAC, $\frac{AB}{AC} = \tan 60° \Rightarrow \frac{50}{x} = \sqrt{3}$

$\Rightarrow x = \frac{50}{\sqrt{3}}$ ...(i)

In ΔDCA, $\frac{DC}{CA} = \tan 30°$

$\Rightarrow \frac{h}{x} = \frac{1}{\sqrt{3}}$

$\Rightarrow h = \frac{x}{\sqrt{3}} = \frac{1}{\sqrt{3}} \times \frac{50}{\sqrt{3}} = \frac{50}{3} = 16.67$ m [From (i)]



Q5.

Two poles of equal heights are standing opposite to each other on either side of the road, which is 100 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 60° and 30°, respectively. Find the height of the poles

Q6.

From the top of a vertical tower, the angles of depression of two cars in the same straight line with the base of the tower, at an instant are found to be 45° and 60°. If the cars are 100 m apart and are on the same side of the tower, find the height of the tower.

Q7.

An observer, 1.7 m tall, is $20\sqrt{3}$ m away from a tower. The angle of elevation from the eye of observer to the top of tower is 30°. Find the height of tower.

Q8.

The angle of elevation of the top of a hill at the foot of a tower is 60° and the angle of depression from the top of the tower of the foot of the hill is 30°. If the tower is 50 m high, find the height of the hill.

Q9.

The angle of elevation of a cloud from a point 60 m above a lake is 30° and the angle of depression of the reflection of the cloud in the lake is 60°. Find the height of the cloud from the surface of the lake.

Q10.

A ladder of length 6 m makes an angle of 45° with the floor while leaning against one wall of a room. If the foot of the ladder is kept fixed on the floor and it is made to lean against the opposite wall of the room, it makes an angle of 60° with the floor.Find the distance between these two walls of the room.