Angle of Elevation and Depression

1. At a point on the ground 50 meters from the foot of a tree, the angle of elevation of the top of the tree is 48°. Find the height of the tree to the nearest hundredth of a meter.

2. From the top of a lighthouse 190 ft. high the angle of depression of a boat out at sea is 34°. Find, to the nearest tenth of a foot, the distance from the boat to the foot of the lighthouse.

3. A building stands on level ground. The measure of the angle of elevation of the top of the building, taken at a point 400 feet from the foot of the building, is 31 degrees. Find, to the nearest tenth of a foot, the height of the building.

4. From the top of a 100 foot high pole, an observer measures the angle of depression of a car on the road as 28 degrees. Find, to the nearest hundredth of a foot, the distance from the car to the base of the pole.

5. From a point on level ground, the angle of elevation of the top of an 85 foot pole is 62 degrees. Find, to the nearest tenth of a foot, the distance from that point to the foot of the pole.

6. From the top of a 120 foot light house, the angle of depression of a boat out at sea is 26 degrees. Find, to the nearest foot, the distance from the boat to the foot of the lighthouse.

7. Find, to the nearest degree, the angle of elevation of the sun when a person 170 cm tall casts a shadow 220 cm long.

8. A wooden beam 6 meters long leans against a wall and makes an angle of 71^{o} with the ground. How high up the wall , to the nearest meter, does the beam reach?

9. A wire attached to the top of a pole is also attached to a stake in the ground 20 ft. from the foot of the pole and makes an angle of 22^{o} with the pole. Find, to the nearest foot, the length of the wire.

10. A straight road to the top of a hill is 2500 meters long and makes an angle of 12^{o} with the horizontal. Find, to the nearest hundred meters, the height of the hill.

11. Find, to the nearest degree, the angle of elevation of the sun when a person 170 cm tall casts a shadow 170 cm long.

12. The top of a 40 ft. ladder touches a point on the wall 36 feet off the ground. Find, to the nearest degree, the measure of the angle that the ladder makes with the wall.

13. In a playground, a slide that is 9 m long runs over a horizontal distance of 6 meters along the ground. Find, to the nearest degree, the angle the slide makes with the ground.