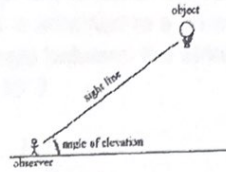


Angle of Elevation and Depression

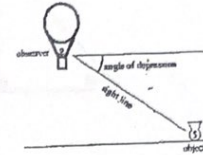
Angle of Elevation:

The angle above the horizontal that an observer must look to see an object that is higher than the observer. Example, a bug looking at a bird.



Angle of Depression:

The angle below horizontal that an observer must look to see an object that is lower than the observer. Example, a bird looking down at a bug.



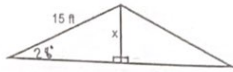
Questions:

1. A building is 50 feet high. At a distance away from the building, an observer notices that the angle of elevation to the top of the building is 41° . How far is the observer from the base of the building?

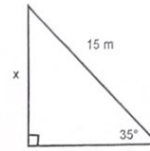
2. A kite is 33m above the ground. The angle of elevation is 38° . Assuming that the string is taut, how much string is out?

3. A bird sits on top of a lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35° . The distance from the bird to the observer is 25m. How tall is the lamppost?

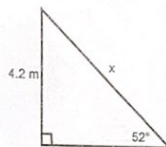
1. A rafter makes an angle of 28° with the horizontal. If the rafter is 15 feet long, what is the height at the rafter's peak?



2. How high is a weather balloon tied to the ground if it is attached to a 15-metre string and the angle between the string and the ground is 35° ?

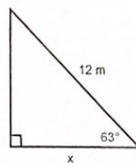


3. How long is a guy wire that is attached 4.2 m up a pole if it makes an angle of 52° with the ground?

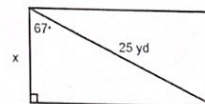


4. A boat is carried with the current at an angle of 43° to the shore. If the river is approximately 15 m wide, how far does the boat travel before reaching the opposite shore?

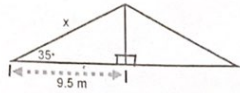
5. How far from the base of a flagpole must a guy wire be fixed if the wire is 12 m long and it makes an angle of 63° with the ground?



6. Reba walks 25 yards across the diagonal of a rectangular field. If the angle between the width and the diagonal is 67° , how wide is the field?

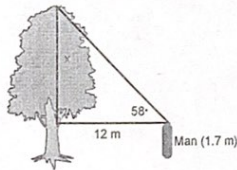


7. What is the length of a rafter that makes an angle of 35° with the floor of an attic whose center is 9.5 m from the edge?



8. What horizontal distance has a car travelled if the incline of the road averages 3.2° and the car's odometer reads 8.5 km?

9. A 1.7 m tall man stands 12 m from the base of a tree. He views the top of the tree at an angle of 58° . How tall is the tree?



10. How far from the base of a house is the foot of a ladder if the angle of elevation is 70° and it reaches 15 feet up the side of the house?