

Recall the below Trig ratios: SOH – CAH - TOA

$$\sin \angle \theta = \frac{Opp}{Hyp} \quad \cos \angle \theta = \frac{Adj}{Hyp} \quad \tan \angle \theta = \frac{Opp}{Adj}$$

Word Problems: Find the value of indicated angle

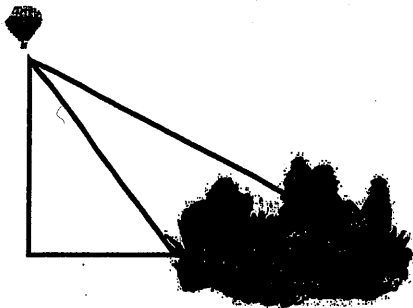
1. The angle of elevation from a point 116 meters from the base of the Eiffel Tower to the top of the Tower is 67° . Find the approximate height of the tower.
2. The angle of elevation to the top of the Egyptian pyramid Cheops is 36° , measured from a point 350 feet from the base of the pyramid. Find the height of Cheops.
3. DME (Distance Measuring Equipment) is standard avionics equipment on a commercial airplane. This equipment measures the distance from a plane to a radar station. If the distance from a plane to a radar station is 160 miles and the angle of depression is 33° , find the number of ground miles from a point directly below the plane to the radar station.
4. If the distance from a helicopter to a tower is 300 feet and the angle of depression is 40° , find the distance on the ground from a point directly below the helicopter to the tower.

5. You are cleaning the gutters on your house. The gutters are at a height of 24 feet. If you have a 50 foot ladder, what is the minimum angle the ladder can form with the ground? How far away from the house is your ladder?
6. An airplane is preparing to land at the airport. The airplane is flying at an altitude of about 1200 feet and is approximately 13,700 feet from the touchdown point on the runway. What angle does the approach path make with the runway?
7. The base of an isosceles triangle is 58 yards long. The altitude to the base is 80 feet long. What are the measures of the base angles? What are the lengths of the legs?
8. A 50 ft pole has a support wire that runs from its top to the ground with an angle of depression of 75° . How far from the base of the pole does the wire connect to the ground? How long is the wire?

9. According to Chinese legend from the Han Dynasty, General Han Xin flew a kite over the palace. If the general let out 700 meters of string and the kite was flying at a 40° angle of elevation, approximately how far away was the palace? How high was the kite flying?

10. Assume you are flying in a plane at an altitude of 25,000 feet to sky dive. If you can see the landing spot at an angle of depression of 19° how many feet until you are over the landing spot and ready to jump?

11. The angle of depression of one side of a lake, measured from a balloon 2500 feet above the lake is 43° . The angle of depression to the opposite side of the lake is 27° . Find the width of the lake.



12. Kevin is standing x feet from the base of the Washington Monument and the angle of elevation to the top of the monument is 42° . Mark is standing 100 feet away and the angle of elevation to the top of the monument is 37° . How far away is Kevin standing?

