

SOHCAHTOA Word Problems

1. Draw a picture!
2. Write an equation.
3. Solve.

Solve for a missing side length.

An observer stands 750 yards from the launch pad of a model rocket. As the rocket rises, the observer measures its angle of elevation at a given moment to be 41 degrees. At that moment, how far apart are the rocket and the observer?

Solve for a missing angle measure

The tallest television transmitting tower in the world is in North Dakota, and it is 2059 feet tall. If you are on level ground exactly 5280 feet (one mile) from the base of the tower, what is your angle of elevation looking up at the top of the tower?

Name _____

1.

A loading dock has been constructed at a warehouse. The ramp should have an incline of exactly 25° . The ramp meets the building wall 15 feet above the ground. How long is the ramp to the nearest tenth of a foot.

2.

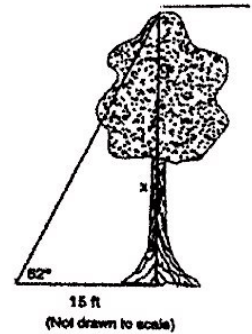
A ramp has to be constructed for a new public building. The ramp should have an incline of exactly 15° . The building is located 45 feet from the road. What is the length of the ramp to the nearest tenth of a foot?

3.

Jon is a contestant in a competition. He must stand by the window on the 20th floor of a tall building. He has to throw a ball from that position so it hits a circle on the ground. The circle is 55 feet from the base of the building. When he throws the ball, his hand is 235 feet above the ground. To the nearest tenth of a foot, how far does the ball have to go in a straight line to reach the circle?

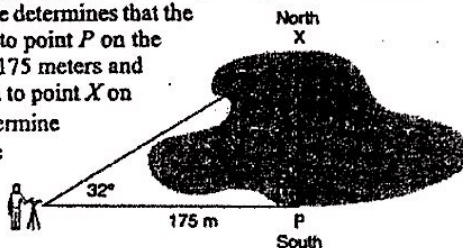
4.

Find, to the nearest tenth of a foot, the height of the tree represented in the accompanying diagram.



5.

A surveyor needs to determine the distance across the pond shown in the accompanying diagram. She determines that the distance from her position to point P on the south shore of the pond is 175 meters and the angle from her position to point X on the north shore is 32° . Determine the distance, PX , across the pond, rounded to the nearest meter.



6.

Joe is holding his kite string 3 feet above the ground, as shown in the accompanying diagram. The distance between his hand and a point directly under the kite is 95 feet. If the angle of elevation to the kite is 50° , find the height, h , of his kite, to the nearest foot.