PAP Geometry   Name_____

Trig Applications

1. You are standing 50 feet away from a building. The angle of elevation from the ground to the top of the building is 57°. What is the height of the building?

2. The angle of elevation from a ship to a 135 foot tall lighthouse is 2°. How far is the ship from the lighthouse?

3. During the construction of a house, a 6 foot long board is used to support a wall. The board has an angle of elevation from the ground to the wal of 67°. How far is the base of the board from the wall?

4. Bleachers in a stadium are 4 meters tall and have a length of 12 meters, as shown in the diagram. Calculate the measure of the angle formed by the bleachers and the ground.
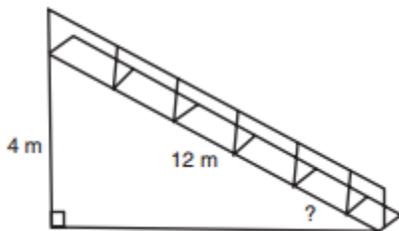
5. A bicycle race organizer needs to put up barriers along a hill. The hill is about 300 feet tall and from the top makes an angle of depression of 26°. How long does the barrier need to be?

6. An airplane flying 3500 feet from the ground sees an airport at an angle of depression of 77°. How far is the airplane from the airport?

7. A 20-foot flagpole is raised by a 24-foot rope, as shown in the diagram. Calculate the measure of the angle formed by the rope and the ground.

24 ft   20 ft

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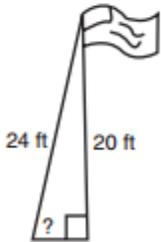
8. A person is standing on the runway of an airport 100 feet from the control tower. That person observes an air traffic controller at the window of the 132 foot tower. What is the angle of elevation?

9. Meteorologist Stormy Grey uses a clinometer (an angle-measuring device) on a 1-meter-tall tripod to find the height of a weather balloon. She views the balloon at a 44° angle of elevation. A radio signal from the balloon tells her that it is 1400 meters from her clinometers.

a. How high is the balloon?

b. How far is she from the point directly below the balloon?

c. If Stormy's clinometer was on the ground rather than on a tripod, would your answers change? Why?