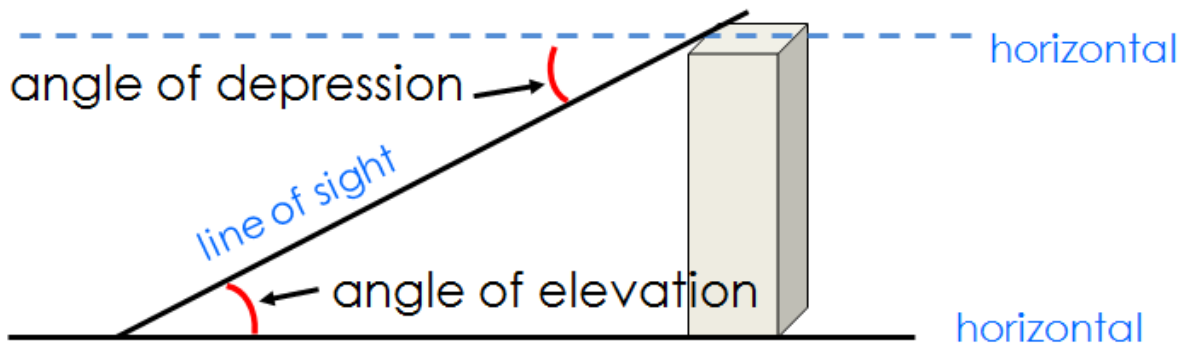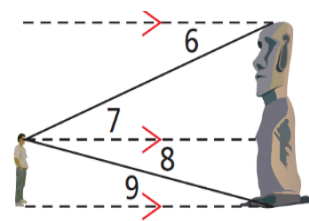# Trig Application Problems

Angle of Elevation & Angle of Depression

1. Classify each angle as an angle of elevation or angle of depression:

2. Over 2 miles (horizontal), a road rises 300 feet (vertical). What is the angle of elevation to the nearest degree?

3. The angle of depression from the top of a tower to a boulder on the ground is 38°. If the tower is 25 meters high, how far from the base of the tower is the boulder? Round to the nearest whole number.

4. Find the angle of elevation to the top of a tree for an observer who is 31.4 meters from the tree if the observer's eye is 1.8 meters above the ground and the tree is 23.2 meters tall. Round to the nearest degree.

5. A 75 foot building casts an 82 foot shadow. What is the angle that the sun hits the building? Round to the nearest degree.

6. A boat is sailing and spots a shipwreck 650 feet below the water. A diver jumps from the boat and swims 935 feet to reach the wreck. What is the angle of depression from the boat to the shipwreck, to the nearest degree?

7. A 5 ft tall bird watcher is standing 50 feet from the base of a large tree. The person measures the angle of elevation to a bird on top of a tree as 71.5°. How tall is the tree? Round to the nearest tenth.

8. A block slides down a 45° slope for a total of 2.8 meters. What is the change in the height of the block? Round to the nearest tenth.

9. A projectile has an initial horizontal velocity of 5 meters per second and an initial vertical velocity of 3 meters per second upwards. At what angle was the projectile fired, to the nearest degree?

10. A construction worker leans his ladder against a building making a 60° angle with the ground. If his ladder is 20 feet long, how far away is the base of the ladder from the building to the nearest tenth?