Directions: Show all work on this worksheet. Be sure to draw and label a right triangle with the given information.

1. A wire reaches from the top of the pole to a stake in the ground. The stake is 10 feet from the foot of the pole. The wire makes an angle of 65° with the ground. Find the length of the wire to the nearest foot.

2. A boy who is flying a kite lets out 300 feet of string which makes an angle of 38° with the ground. Assuming that the string is straight, how high above the ground is the height? Give your answer to the nearest foot.

3. A man standing 30 feet from the flagpole observes the angle of elevation of its top to be 48°. Find the height of the flagpole to the nearest tenth of a foot.

4. A Boy Scout on top of a 1,700-foot-tall mountain spots a campsite. If he measures the angle of depression at 35°, how far is the campsite from the foot of the mountain?

5. A soccer ball is placed 12 feet away from a goal post that measures 8 feet high. You kick the ball and it hits the crossbar at the top of the goal. What was the angle of elevation of your kick? Round to the nearest degree.

6. An airplane pilot observes the angle of depression of a point on a landing field to be 28°. If the plane's altitude at this moment is 900 meters, find the distance from the pilot to the observed point on the landing field.

7. A tree that is 18 ft tall cast a shadow that is 20ft long. What is the angle of elevation of the sun?

8. Suppose your angle of elevation to the top of a water tower is 78°. If the water tower is 145 ft tall, how far are you standing from the water tower?

9. The angle of elevation from the control tower to an airplane is 49°. The airplane is flying at 5000 ft. How far away from the control tower is the plane?

10. A Boy Scout on top of a 1700-ft-tall mountain spots a campsite. If he measures the angle of depression at 35°, how far is the campsite from the foot of the mountain?

11. A 100-foot kite string gets caught on a 95 foot pole. At what angle is the string and pole?

12. You are standing 10 ft away from a tree. The angle of elevation from your foot to the top of the tree is 65°. How tall is the tree?