1. From a point on the ground 47 feet from the foot of a tree, the angle of elevation of the top of the tree is 35°. Find the height of the tree to the nearest foot.

33 ft.

1. An 8-foot metal guy wire is attached to a broken stop sign to secure its position until repairs can be made. Attached to a stake in the ground, the guy wire makes an angle of 51º with the ground. How far from the foot of the stop sign is the stake, to the nearest tenth of a foot?

5.0’

1. On a windy day, a 90 foot rope tightly secures a hot air balloon to a stake in the ground. From the balloon, the angle of depression of the stake is 62°. Find, to the nearest foot, the height of the balloon, assuming the wind to be constant.

79’

1. From point P on the ground, the angle of elevation of an airplane is 23°. The altitude of the plane is 1200 meters. What is the distance from point P to the airplane, to the nearest tenth of a meter?

3017.2m

1. From the hay loft door, Ted sees his dog on the ground. The angle of depression of the dog is 40°. Ted's eye level is 16 feet above the ground. How many feet must the dog walk to reach the open barn door directly below Ted (to the nearest foot)?

19’

1. A shopper is standing on level ground 800 feet from the base of a 250-foot-tall department store. The shopper looks up and sees a flag on the store's roof. To the nearest degree what is the angle of elevation to the top of the building from the point on the ground where the shopper is standing?

17deg

1. From the top of a 108-foot lighthouse, the angle of depression of a boat at sea is 27°. Find the horizontal distance from the boat to the base of the lighthouse, to the nearest foot.

212’

1. A flag pole 18 feet tall casts a shadow 12 feet long at a specific time of day. Find, to the nearest degree, the angle of elevation of the sun at this time of day.

56deg

1. A student lets out 100 feet of string on a kite from a hand height of 3 feet. The angle between horizontal hand height and the kite is 25°. Find the height of the kite above the ground, to the nearest foot.

45’

1. Simon bought a new shop and wants to order a new sign for the roof of the building. From point P, he finds the angle of elevation of the roof, from ground level, to be 31° and the angle of elevation of the top of the sign to be 42°. If point P is 24 feet from the building, how tall is the sign to the nearest tenth of a foot?

7.2’

1. A plane has traveled 26 miles on a course heading 48° east of north. How far north (x) has the plane traveled at this point, to the nearest tenth of a mile?

17.4 miles