

Name _____

Date _____

Applying Trigonometric Functions to Real Situations

Period _____

Draw a picture for each story problem below and then solve. Round your answers to three decimal places.

1. A forest ranger looking out from a ranger's station can see a forest fire at a 35° angle of depression. The ranger's position is 100 feet above the ground. How far is it from the ranger's station to the fire?

2. A person standing 30 ft from a flag pole can see the top of the pole at a 35° angle of elevation. The person's eye level is 5 ft from the ground. Find the height of the flag pole to the nearest foot.

3. The captain of a boat knows that a lighthouse on the coast is 100 ft tall. If she measures the angle of elevation to be 2° , how far is the boat from the coast?

4. A blimp is flying 500 ft above the ground. A person on the ground sees the blimp by looking up at a 25° angle. The person's eye level is 5 feet above the ground. Find the distance from the blimp to the person.

5. An airplane pilot can see the top of a traffic control tower at a 20° angle of depression. The airplane is 5,000 ft from the tower. How far above the tower is the airplane?

6. Two office buildings are 51 m apart. The height of the taller building is 207 m. The angle of depression from the top of the taller building to the top of the shorter building is 15° . Find the height of the shorter building.
7. A surveyor is 980 ft from the base of the world's tallest fountain at Fountain Hills, Arizona. The angle of elevation to the top of the column of water is 29.7° . His angle measuring device is at the same level as the base of the fountain. Find the height of the column of water to the nearest 10 ft.
8. On the observation platform in the crown of the Statue of Liberty, Miguel is approximately 250 ft about ground. He sights a ship in New York harbor and measures the angle of depression as 18° . Find the distance from the ship to the base of the statue.
9. A meteorologist measures the angle of elevation of a weather balloon as 41° . A radio signal from the balloon indicates that it is 1503 m from her location. How high is the weather balloon above the ground?
10. A blimp is flying to cover a football game. The pilot sights the stadium at a 7° angle of depression. The blimp is flying at an altitude of 400 m. How many kilometers is the blimp from the point 400 m above the stadium?