

1. A boat is 70m from a lighthouse. The measurement of the angle of elevation from the boat to the top of the lighthouse is 52° . Find the height of the lighthouse
2. Trevor is standing on the top of a cliff 200 feet above a lake. The measurement of the angle of depression to a boat on the lake is 21° . How far is the boat from the base of the cliff?
3. Donna is flying a kite to which the angle of elevation is 70° . The string on the kite is 65m long. How far is the kite above the ground?
4. A flagpole casts a shadow 40ft long when the measurement of the angle of elevation of the sun is 31° . How tall is the flagpole?
5. According to the pilot's instruments, the measurement of the angle of depression of an aircraft carrier from a plane 1000ft above the water is 63° . How far is the plane from the carrier?
6. Aaron is standing 300m from the base of a radio tower. According to his astrolabe (a device used to measure angles), the measurement of the angle of elevation to the top of the tower is 40° . How high is the tower?
7. CJ and AJ are observing the Washington Monument from $\frac{1}{4}$ mile away. The monument is 555 feet tall. What is the angle of elevation from their location to the top of the monument?
8. A tree was broken in a recent storm. The top of the tree touches the ground 13 meters from the base. The top of the tree makes an angle of 29° with the ground. How tall was the tree before it was broken?

8. You are 50 feet from the screen at a drive-in movie. Your eye is on a horizontal line with the bottom of the screen and the angle of elevation to the top of the screen is 58° . How tall is the screen?

9. You are a block away from a skyscraper that is 780 feet tall. Your friend is between the skyscraper and yourself. The angle of elevation from your position to the top of the skyscraper is 42° . The angle of elevation from your friend's position to the top of the skyscraper is 71° . To the nearest foot, how far are you from your friend?

10. At 2 pm the shadow of lighthouse is 19 feet long and the angle of elevation is 75° . Find the height of the lighthouse.

11. At 4 pm the angle of elevation is 40° . Find the length of the shadow cast by the lighthouse

12. At 6 pm will the length of the shadow be longer or shorter than it was at 4pm? Why or why not?

13. A chair lift on a ski slope has an angle of elevation of 28° and covers a total distance of 4640 feet. To the nearest foot, what is the vertical height "h" covered by the chair lift?

14. An airplane is on a straight line approach that forms a 3° angle with the runway. What is the distance covered along the approach path if the plane is 500 feet above the ground?