

Practice 8-5

Angles of Elevation and Depression

Solve each problem. Round measures of segments to the nearest hundredth and measures of angles to the nearest degree.

1. A 20-foot ladder leans against a wall so that the base of the ladder is 8 feet from the base of the building. What angle does the ladder make with the ground?
2. A 50-meter vertical tower is braced with a cable secured at the top of the tower and tied 30 meters from the base. What angles does the cable form with the vertical tower?
3. At a point on the ground 50 feet from the foot of a tree, the angle of elevation to the top of the tree is 53° . Find the height of the tree.
4. From the top of a lighthouse 210 feet high, the angle of depression to a boat is 27° . Find the distance from the boat to the foot of the lighthouse. The lighthouse was built at sea level.
5. Richard is flying a kite. The kite string makes an angle of 57° with the ground. If Richard is standing 100 feet from the point on the ground directly below the kite, find the length of the kite string.
6. An airplane rises vertically 1000 feet over a horizontal distance of 1 mile. What is the angle of elevation of the airplane's path? (Hint: 1 mile = 5280 feet)