

Applications, Applications and More Applications

Solve each of the following. Draw or redraw a picture where necessary.

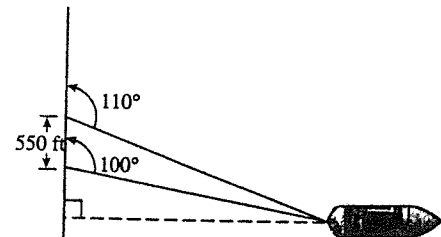
1. A passenger in an airplane flying at an altitude of 10 km sees two towns directly to the left of the plane. The angles of depression to the towns are 28° and 55° . How far apart are the towers?

2. Two observers simultaneously measure the angle of elevation of a helicopter. One angle is measured as 25° , the other as 40° . If the observers are 100 feet apart and the helicopter lies over the line joining them, how high is the helicopter?

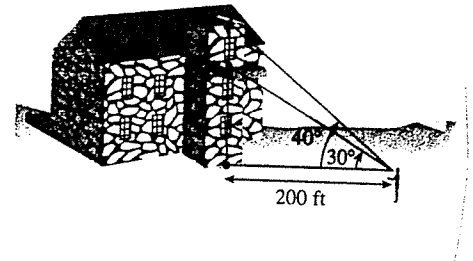
5. A hot air balloon over Park City, Utah is 760 ft. above the ground. The angle of depression from the balloon to an observer is 5.25° . Assuming the ground is relatively flat, how far is the observer from a point on the ground directly under the balloon?

6. The angle of depression is 19° from a point 7256 ft. above sea level on the north rim of the Grand Canyon level to a point 6159 ft. above sea level on the south rim. How wide is the canyon at that point?

7. A shoreline runs north-south and a boat is due east of the shoreline. The bearings of the boat from two points on the shore are 110° and 100° . Assume the two points are 550 ft. apart. How far is the boat from the shore?



8. The angle of elevation from an observer to the bottom edge of the Delaware River drawbridge observation deck located 200 ft. from the observer is 30° . The angle of elevation from the observer to the top of the observation deck is 40° . What is the height of the observation deck?



9. A ramp leading to a freeway overpass is 470 ft. long and rises 32 ft. What is the angle of inclination of the ramp to the nearest tenth of a degree?

10. The angle of elevation of the top of the TV antenna mounted on top of the Eiffel Tower in Paris is measured to be 80° at a point 185 ft. from the base of the tower. How tall is the tower plus TV antenna?

