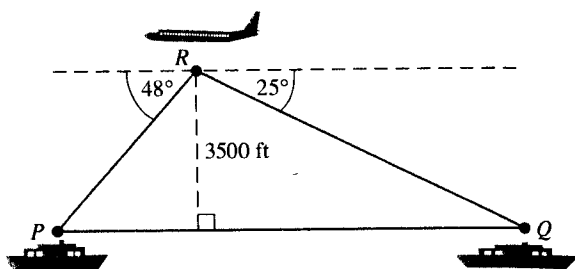


- 1.) The accompanying figure shows two ships at points P and Q , which are in the same vertical plane as an airplane at point R . When the height of the airplane is 3500 ft, the angle of depression to P is 48° and that to Q is 25° . Find the distance between the two ships. Round the answer to the nearest 10 ft.



- 2.) An observer in a lighthouse is 66 ft above the surface of the water. The observer sees a ship and finds the angle of depression to be 0.7° . Estimate the distance of the ship from the base of the lighthouse. Round the answer to the nearest 5 ft.
- 3.) A surveyor stands 30 yd from the base of a building. On top of the building is a vertical radio antenna. Let α denote the angle of elevation when the surveyor sights to the top of the building. Let β denote the angle of elevation when the surveyor sights to the top of the antenna. Express the length of the antenna in terms of angles α and β .
- 4.) The arc in the next figure is a portion of the unit circle, $x^2 + y^2 = 1$.
- Express the following angles in terms of θ : $\angle BOA$, $\angle OAB$, $\angle BAP$, $\angle BPA$. (Assume θ is in degrees).
 - Express the following lengths in terms of $\sin \theta$ and $\cos \theta$: AO , AP , OB , BP .

