## §1.8: Applications and Models

1.] The sun is $20^{\circ}$ above the horizon. Find the length of a shadow cast by a park statue that is 12 feet tall.
2.] A ladder that is 20 feet long leans against the side of a house. The angle of elevation of the ladder is $80^{\circ}$. Find the height from the top of the ladder to the ground.
3.] A jet leaves Reno, Nevada, and heads toward Miami, Florida, at a bearing of $100^{\circ}$. The distance between the two cities is 2472 miles.
a.) How far north and how far west is Reno relative to Miami?
b.) The jet is to return directly to Reno from Miami. At what bearing should it travel?
4.] A ship is 45 miles east and 30 miles south of a port. The captain wants to sail directly to port. What bearing should the captain take?
5.] At a point 50 feet from the base of a church, the angles of elevation to the bottom of the steeple and the top of the steeple are $35^{\circ}$ and $48^{\circ}$, respectively. Find the height of the steeple.

