## §1.8: Applications and Models

1.] The sun is 20° 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°. 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°. 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° and 48°, respectively. Find the height of the steeple.