Section 11.5: Applications of the Quadratic Formula

1. Two cars left an intersection at the same time, one heading due north, the other due west. Some time later, they were exactly 100 mi apart. The car headed north had gone 20 mi farther than the car headed west. How far had each car traveled?

2. A ladder is leaning against a house. The distance from the bottom of the ladder to the house is 56 ft. The distance from the top of the ladder to the ground is 1 ft less than the length of the ladder. How long is the ladder?

3. A rectangular reflecting pool in a park is 20 ft wide and 30 ft long. The park gardener wants to plant a strip of grass of uniform width around the edge of the pool. She has enough seed to cover 336 ft^2. How wide will the strip be?

4. Suppose the pool in the above example is 20 ft by 40 ft and there is enough seed to cover 700 ft^2. How wide should the grass strip be?

5. If an object is projected upward from the top of a 144 ft building at 112 ft per sec, it's position (in feet above the ground) is given by $s(t) = -16t^2 + 112t + 144$, where *t* is time in seconds after it was projected. When does it hit the ground? (Hint: when an object hits the ground, its distance above the ground is 0)

6. A ball is projected upward from the ground. Its distance in feet from the ground at t seconds is $s(t) = -16t^2 + 64t$. At what times will the ball be 32 ft from the ground?

Answers:

1. 80 mi.
2. 13 ft
3. 3 ft
4. 5 ft
5. 8.1 sec
6. 0.6 sec and 3.44 sec