

# 1.3 Quadratic Equations & 1.4 The Quadratic Formula

Name \_\_\_\_\_

1. Solve the following equations:

a)  $x^2 - 10x = -9$

b)  $-x^2 = \frac{1}{4}x + \frac{1}{64}$

2. When is the function zero?

a)  $f(x) = 4x^2 - 8x - 9$

b)  $g(t) = t^2 - 11t - 12$

c)  $g(t) = t^2 - 1t + 12$

3. A college algebra instructor jumps from the top of 100-foot building into a shallow pool of water. How long will it take for the instructor to hit the water?
4. A college algebra student shoots a potato gun straight into the air with a velocity of 200 feet per second. If the potato was launched from 5 feet above the ground, when will the potato hit the ground?
5. A college algebra student shoots a potato gun straight into the air and the potato hits the ground 4 seconds later. If the potato was launched from 5 feet above the ground, what was the muzzle velocity of the potato gun?
6. A farmer builds a rectangular pen next to a river to cage his ostriches. There must be fence on 3 sides of the rectangle, but the river encloses the last side. If the pen is twice as long as it is wide (it runs along the river) and is 3200 square feet, what are the dimensions of the pen?