Section 7.7 Quadratic Equations and Problem Solving

# Objective 1: Solving Problems Modeled by Quadratic Equations

Some problems can be modeled by quadratic equations.

a. An object is thrown upward from the top of an $80$-foot building with an initial velocity of $64$ feet per second. The height of the object, in feet, $t$ seconds after it is thrown is given by the equation $h=-16t^{2}+64t+80$. When will the object hit the ground?

b. The length of a rectangle is $31$ centimeters less than five times its width. The area of the rectangle is $72$ square centimeters. Find the dimensions of the rectangle.

c. Find the length of the shorter leg of a right triangle if the longer leg is $8$ feet more than the shorter leg and the hypotenuse is $8$ feet less than twice the shorter leg.