

3.10 Quadratic Applications Part 2

1. $h = -16t^2 + V_0t + h_o =$
 $h_o = \text{initial height (ft)}$ $h = \text{final height (ft)}$
 $V_o = \text{initial velocity}$ $t = \text{time (seconds)}$

A baseball is thrown from the top of a 640 ft building at a velocity of 52 ft/sec. How long does it take to hit the ground?

$$h = -16t^2 - 52t + 640$$

$$o = -16t^2 - 52t + 640$$

$$t = \frac{52 \pm \sqrt{52^2 - 4 \cdot 16 \cdot 640}}{-32}$$

$$= \frac{52 \pm \sqrt{43664}}{-32} = -8.15 \text{ or } 4.9$$

4.9 seconds

What if the object is dropped? ($V_o=0$)

Thrown up up? ($V_o=\text{positive}$)

2. Finding vertex

- Put equation into vertex form

Or

- $x = \frac{-b}{2a}$ finds x-coordinate of the vertex; substitute back in to find y