

11-4 Quadratic Equations in Context

Name _____

Per. ____

1. Mr. Sheets punts a football from a height of 2.5 feet above the ground with an initial vertical velocity of 45 feet per second.

The equation that gives the height h (in feet) of the football as a function of the time t (in seconds) after it has been punted is shown by $h = -16t^2 + 45t + 2.5$.

- a. Find the maximum height the football will reach.
 - b. How many seconds will it take for the football to hit the ground?
 - c. The football is caught 5.5 feet above the ground. Find the amount of time that the football is in the air.
 - d. How many feet off the ground will the football be after 2 seconds?
2. The formula $h = -16t^2 + 48t + 160$ gives the height of an object, h , thrown from a building 160 feet high with an initial speed of 48 feet/second, where t is the time measured in seconds. How long will it take for the object to hit the ground?
 3. A company's weekly revenue in dollars is given by $R = 2000 - 2x^2$, where x is the number of items produced during a week and R is the weekly revenue. What amount of items will produce the maximum revenue?