

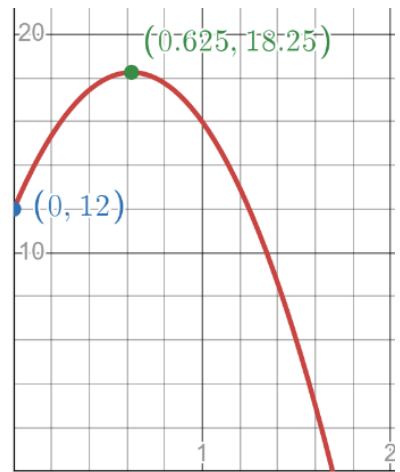
Name: _____

Modeling with Quadratics - Answer Key

This description, function and graph all describe the same situation. Measurements are in feet and inches.

My friend is standing on a balcony and throws a baseball to me on the beach below him.

$$h(t) = 12 + 20t - 16t^2$$



Answer the following questions about the key features of the situation:

How high is the baseball when it is thrown? 12 How can you tell? The start of the graph (y-intercept) is at (0, 12), and the function shows 12 as the constant. I know that means the starting height. (Students could say either or both of these answers.)

What is the greatest height of the baseball? 18.25 How can you tell? I can see 18.25 is the highest point on the y-axis on the graph, which represents the height of the ball.

What is the starting vertical velocity of the ball? 20 ft/second (I can tell this from the function as it is the coefficient of the linear term (number in front of the t))

Will the ball still be in the air after 2 seconds? No How can you tell? I see on the graph that the ball is 0 feet high (hits the ground) before 2 seconds have passed (2 on the x-axis).