

Name: _____ Date: _____

Quadratic Applications – Building and Solving Functions

Directions:

1. Draw a picture to represent the situation (it will be a parabola).
 2. Determine which point(s) on the graph would answer the question.
 3. Solve for the requested point.
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1. You drop a ball off a cliff at 320 ft. How long does it take the ball to hit the ground?

$$h(t) = -16t^2 + h_0$$

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2. Hugh Betcha launched a model rocket with an initial speed of 88 feet per second.

After how many seconds will the rocket be 40 feet high? $h(t) = -16t^2 + vt$

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3. A ball is thrown into the air from a height of 4 feet at time $t = 0$. The function that models this situation is $h(t) = -16t^2 + 63t + 4$, where t is measured in seconds and h is the height in feet.

a) What is the height of the ball after 2 seconds?

b) When will the ball reach a height of 50 feet?

c) When will the ball hit the ground?

Applications Practice

4. You drop a ball off a cliff at 500 ft. How long does it take the ball to hit the ground?

$$h(t) = -16t^2 + 500$$

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5. You launched a model rocket with an initial speed of 88 feet per second. After how many seconds will the rocket be 120 feet high? $h(t) = -16t^2 + vt$

A ball is launched into the air from a height of 256 feet at time $t = 0$ with the initial velocity of 96 feet per second. The function that models this situation is $h(t) = -16t^2 + vt + h_0$, where t is measured in seconds and h is the height in feet.

6. What is the height of the ball after 4 seconds?
7. When will the ball reach a height of 144 feet?
8. When will the ball hit the ground?
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