

Solving Quadratic Equations by Factoring (Word Problems)

Name _____

Period _____

1. A relief package is released from a helicopter at 1600 feet. The height of the package can be modeled by the equation $h = -16t^2 + 1600$, where h is the height of the package in feet and t is the time in seconds. The pilot wants to know how long it will take for the package to hit the ground.

a. Write the equation that you are trying to solve. _____

b. Solve the equation by factoring.

2. The height of a flare fired from the deck of a ship in distress can be modeled by $h = -16t^2 + 104t + 56$, where h is the height of the flare above water and t is the time in seconds. Find the time it takes the flare to hit the water.

a. Write the equation that you are trying to solve. _____

b. Solve the equation by factoring.

3. The height of a rocket launched upward from a 160-foot cliff is modeled by $h = -16t^2 + 48t + 160$, where h is the height in feet and t is the time in seconds.

a. Write the equation that you are trying to solve. _____

b. Solve the equation by factoring.

4. The Perimeter of a square is x feet and the area is $2x$ square-feet. Find the dimensions of the square. (Draw a picture, label the sides, write an equation to solve, use "Completing the Square" to solve.)

5. The height of a ball above the ground t seconds after it is thrown is $h(t) = 20 + 21t - 16t^2$. How long will it take for the ball to hit the ground? (Use "Completing the Square" and round to the nearest hundredth of a second.)

6. The path of a cannonball is a parabola modeled by the equation $y = 55 + x - .002x^2$, where x and y are both measured in feet. In this model, the cannonball starts at the point $(0, 55)$ and travels to the right. The ground is represented by the x -axis. Sketch a graph of the cannonball's path and determine the horizontal distance traveled by the ball before it hits the ground.