

Name _____ Period _____ Date _____

Real Life Situations Modeled by Quadratic Equations – Algebra 8

You can solve most of the problems below with your knowledge of key features of parabolas! Each of the equations that model the situations can be factored. **Show all your work**, and don't forget units.

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.
 - a. What does the number 1600 in the equation represent?

 - b. How long it will take for the package to hit the ground?

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.
 - a. How high above the surface of the water is the deck of the ship?

 - b. How long will the flare be in the air?

3. Robert threw a rock off a bridge into the river. The distance from the rock to the river is modeled by the equation $h = -16t^2 - 16t + 60$, where h is the height in feet and t is the time in seconds.

a. How high above the river will the rock be 1 second after Robert throws it?

b. How long will it take for the rock to hit the surface of the water?