GSE Algebra 1 **8.10 – Quadratic Word Problems** **Notes**

We are going to solve word problems. For most of them you can use the quadratic formula. Be sure that each equation is equal to 0 before you solve.

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.

What is the equation that we are using here: Solve using the quadratic formula.

1. Jason jumped off a cliff into the ocean in Mexico while vacationing with some friends. His height as a function of time could be modeled by the function $h\left(t\right)=-16t^{2}+16t+480$, where t is the time in seconds and h is the height in feet.
	1. How long does it take for Jason to reach his maximum height?
	2. What was the highest point that Jason reached?
	3. Jason hit the water after how many seconds?
2. Jimmy threw a rock off a bridge into a 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. Find how long it took the rock to hit the surface of the water.

What is the equation that we are using here: Solve using the quadratic formula.

1. A rocket carrying fireworks is launched from a hill 80 feet above a lake. The rocket will fall into the lake after exploding at its maximum height. The rocket’s height about the surface of the lake is given by

$$h=-16t^{2}+64t+80. $$

* 1. What is the height of the rocket after 1.5 seconds?
	2. What is the maximum height reached by the rocket?
	3. How long will it take for the rocket to hit 128 feet?
	4. After how many seconds after it is launched will the rocket hit the lake?
1. The product of two consecutive positive integers is 132. What are the two numbers?
2. The product of two consecutive odd integers is 195. What are the two numbers?
3. The product of two consecutive positive even integers is 168. What are the two numbers?
4. The length of a rectangular garden is 10 yards more than twice its width. If the area of the land is 48 square yards, find the dimensions of the plot of land.

