

**A canon ball is fired upward from the top of a tall building, 300 feet above the ground. The function  $h(t) = -16t^2 + 160t + 300$  gives the height of the ball above the ground, in feet,  $t$  seconds after it was fired.**

**1. What is the maximum height reached by the ball? How long did it take the ball to reach its maximum height?**

**2. How high above the ground will the ball be after 2 seconds?**

**3. When will the ball be 600 feet above the ground?**

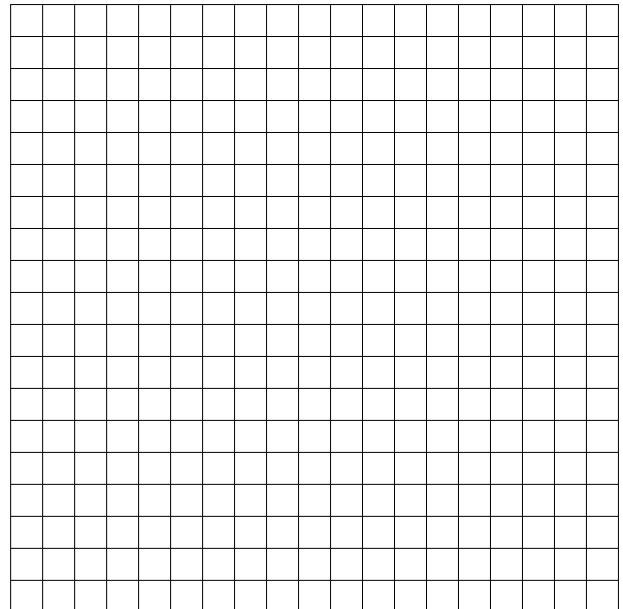
**4. When will the ball again be 300 feet above the ground?**

## General Algebra 2 Worksheet #3 Unit 9 page 2

A canon ball is fired upward from the top of a tall building, 300 feet above the ground. The function  $h(t) = -16t^2 + 160t + 300$  gives the height of the ball above the ground, in feet,  $t$  seconds after it was fired.

5. When will the ball hit the ground?

6. Sketch a graph of this function from  $t = 0$  until the ball hits the ground.



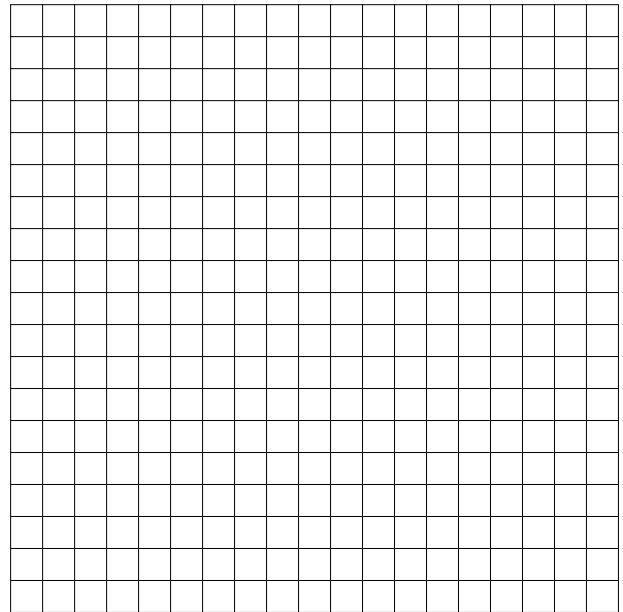
**General Algebra 2 Worksheet #3 Unit 9 page 3**

Sensitivity,  $S$ , to a prescription drug depends on the dosage size,  $x$ , according to the function  $S(x) = 1000x - x^2$ .

7. What dosage size maximizes the sensitivity?

8. What dosage size(s) produce zero sensitivity?

9. Sketch a graph of this function for values of  $x$  from 0 to 1000 milligrams.



## General Algebra 2 Worksheet #4 Unit 9 page 4

The rate of photosynthesis,  $R$ , of a certain plant is a function of the intensity of light,  $x$ , according to the equation  $R(x) = 270x - 90x^2$ .

10. What value of the intensity will maximize the rate of photosynthesis? What is the maximum rate value?

11. Sketch a graph of this function for values of  $x$  from 0 to 3.

