General Algebra 2 Worksheet #3 Unit 9 page 1 _____

A steel ball is propelled upward from a point that is 128 feet above the ground with an initial velocity of 112 feet per second. The function $h(t) = -16t^2 + 112t + 128$ expresses the height of the ball, in feet, as a function of the time, t, in seconds.

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 6 seconds?

3. When will the ball be 288 feet above the ground?

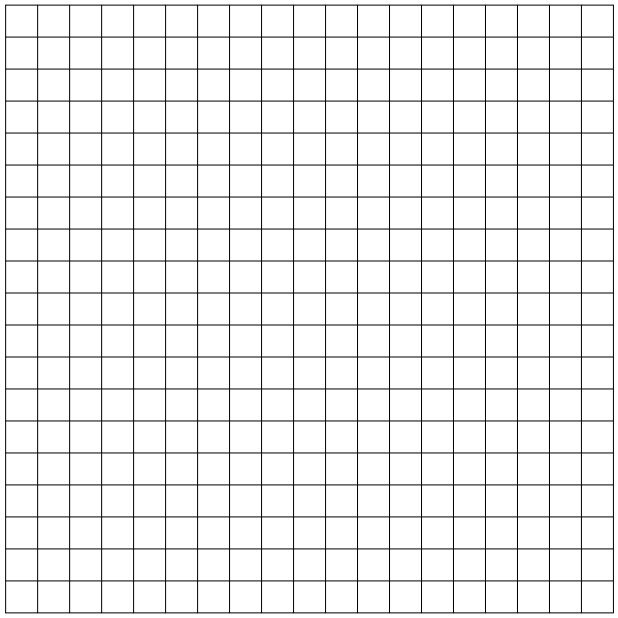
4. When will the ball again be 128 feet above the ground?

General Algebra 2 Worksheet #3 Unit 9 page 2

A steel ball is propelled upward from a point that is 128 feet above the ground with an initial velocity of 112 feet per second. The function $h(t) = -16t^2 + 112t + 128$ expresses the height of the ball, in feet, as a function of the time, t, in seconds.

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

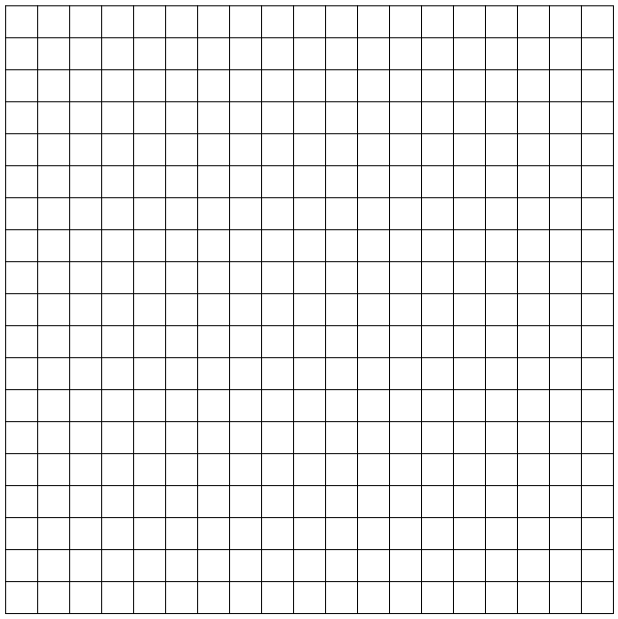
A company produces garden tools. They estimate that their daily profit, P, (in dollars) depends on the number of tools, n, they produce per day according to the function $P(n) = -.01n^2 + 8n - 700$.

7. How many garden tools should they produce per day in order to get a maximum profit? What is the maximum profit?

8. What value(s) of n correspond to 'break even' points (P = 0)?

9. How much money will they lose per day if n = 0?

10. Sketch a graph of this function for values of n from 0 to 800.



General Algebra 2 Worksheet #3 Unit 9 page 4

The maximum orange yield expected from a grove of orange trees is given by the function $y = x(400 - x)$ where y is the yield (in oranges per acre) and x is the number of trees per acre.

11. How many trees per acre will give the greatest yield? What is the greatest yield?

12. Sketch a graph of this function for values of x from 0 to 400.