

Algebra II Worksheet #4 Unit 8 page 1 _____

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

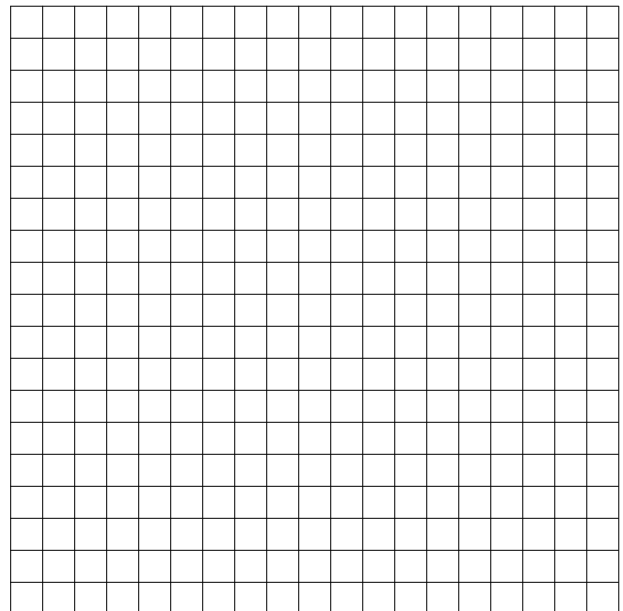
1. What is the maximum height reached by the ball? How long did it take the ball to reach its maximum height?
2. How high above the ground will the ball be after 2 seconds?
3. When will the ball be 600 feet above the ground?
4. When will the ball again be 300 feet above the ground?

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A canon ball is fired upward from the top of a tall building, 300 feet above the ground. The function $h = -16t^2 + 160t + 300$ 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.



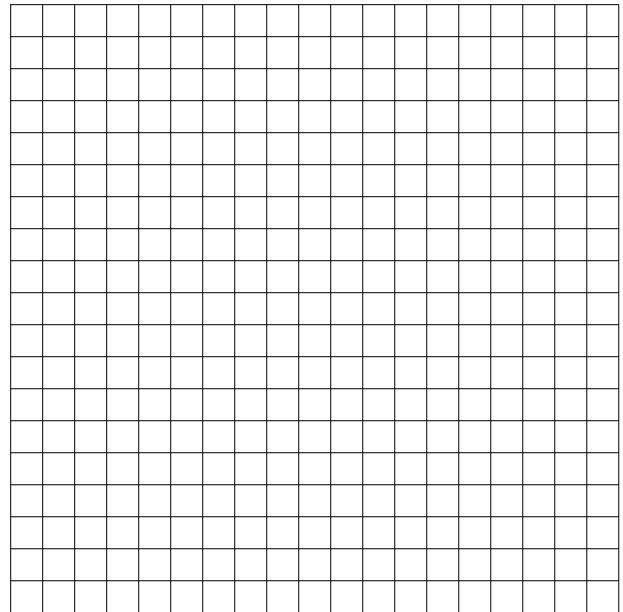
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Sensitivity, S , to a prescription drug depends on the dosage size, x (in milligrams), according to the function $S = 1000x - x^2$.

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.



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

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.

