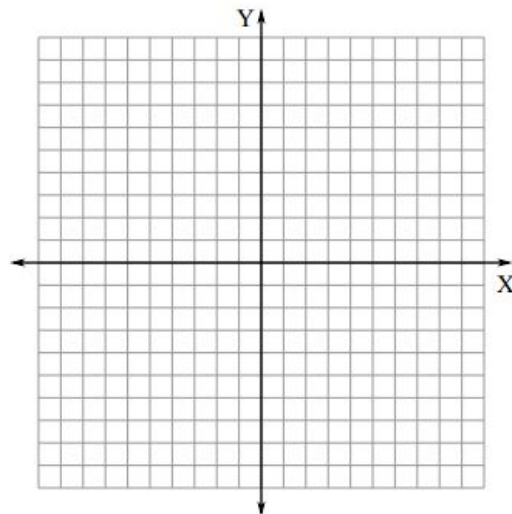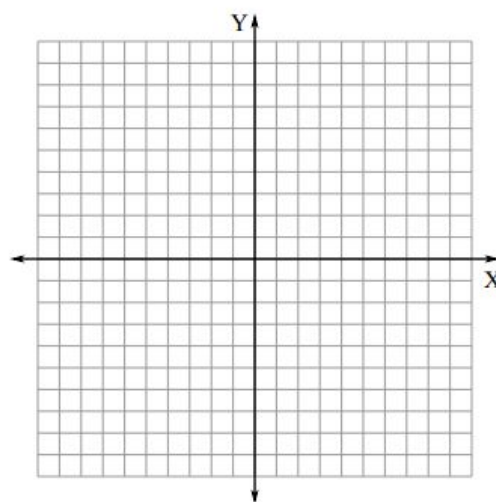|	
1. Find the solution(s) (both x and y values) to this system of equations: $y = -4x - 2$ $y = -2x^2 - 4x + 6$	2. Graph the system of equations from #1 to check your answer(s). Y↑ X
3. Find the solution(s) (both x and y values) to this system of equations: $y = 2x + 3$ $y = x^2 + 8x + 12$	4. Graph the system of equations from #3 to check your answer(s). Y↑ X
5. Find the solution(s) (both x and y values) to this system of equations: $y = x^2 + 2x + 1$ $y = -x^2 + 4x + 5$	6. Graph the system of equations from #3 to check your answer(s).

7. A water balloon is launched in the air towards a remote controlled car. The water balloon's height is modeled by this equation: $h(t) = -16t^2 + 15t + 2$. The car's position is modeled by this equation: $g(t) = 7t - 1$. When does the water balloon hit the car?

8. The revenue for a production by a theatre group is $f(t) = -50t^2 + 300t$ where t is the ticket price in dollars.

The cost for the production is $g(t) = 600 - 50t$.

Determine the ticket price that will allow the production to break even. (Hint: When will the cost equal the revenue?)

9. John kicks a football into the air. The ball's height in meters, h, after t seconds, can be modeled by the quadratic equation
$h(t) = -4.9t^2 + 25t$. It's graph is shown below:

2.551, 31.89

0, 0

5.102, 0
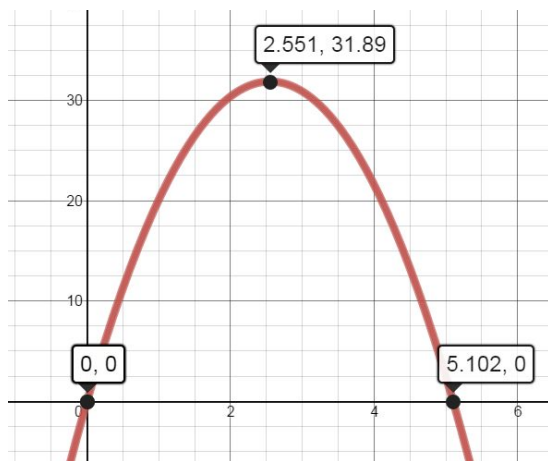
What does the point (0,0) represent on the graph?

What does 31.89 on the graph represent?

What does 5.102 on the graph represent?

10. Mary launches a water balloon. The equation that models the height of the balloon, in feet, after t seconds is: $h(t) = -16t^2 + 40t - 3$.

What is the vertex of this equation?

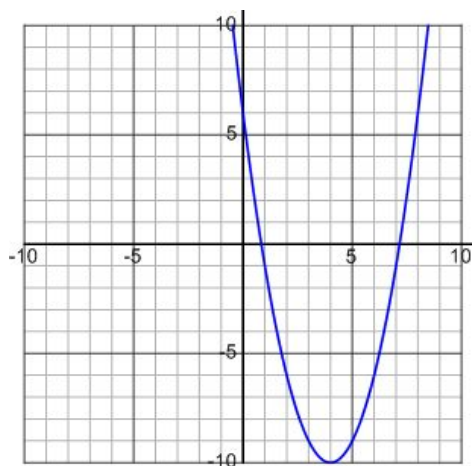(,   )

What do the x and y values of the vertex represent?

x represents:

y represents:

11. Compare f(8) and g(8). Which has a greater value? $f(x) = x^2 - 4x - 12$ $g(x)$ is graphed below: _[graph of upward parabola with vertex near (2, -9)]_	12. The functions f(x) and g(x) are below. Is $f(2) > g(2)$? $f(x) = 2x^2 + 4x + 2$ $g(x)$ is in the table below: | x	g(x)
-1	23
0	13
1	7
2	5
3	7	

Review

13. Simplify and write in the form a+bi : $11 + \sqrt{-72} - 6$	14. Simplify and write in the form a +bi : $i^2(4 - 6i)$
15. Simplify and write in the form a+bi : $(3 + \sqrt{-25})(3 - 5i)$	16. Simplify: $\dfrac{12 \pm \sqrt{-18}}{6}$

17. Use the quadratic formula to find the zeros (find the exact reduced solution): $3x^2 + 4x + 2 = -3$	18. What kind of solutions do you have in #17? a) 2 Real Roots b) 1 Real Root c) 2 Imaginary Roots d) 1 Imaginary Root How do you know?
19. Which function has a greater rate of change on the interval [0,2]. $f(x) = 3x^2 + 6x + 3$ $g(x)$ is in the table | x	g(x)
-1	2
0	7
1	14
2	23		20. Simplify: $(x + 2)(x^2 - 3) - (4x^3 + 6x^2 - 1)$
21 . Find the difference between the two expressions $x^2 + 6x + 9$ and $-2x^2 - x + 1$. Simplify your answer.	22. Find the sum and the product of $(3 + 5i)$ and $(3 - 5i)$ Sum: Product: