Name _____ Date _____

Finding Points of Intersection for Complex Equations - Guided Lesson Explanation

Explanation#1

Step 1) First we have to see what is being asked.

Step 2) We have to solve the equations $2x^2 + 10x + 6 = x^2 + 5x + 2$.

$2x^2 + 10x + 6 = x^2 + 5x + 2$

$2x^2 - x^2 + 10x - 5x + 6 - 2 = 0$

$0 = x^2 + 5x + 4 = (x + 1)(x + 4)$

Now we got x value to check: x = -4. We put the x value in the equations.

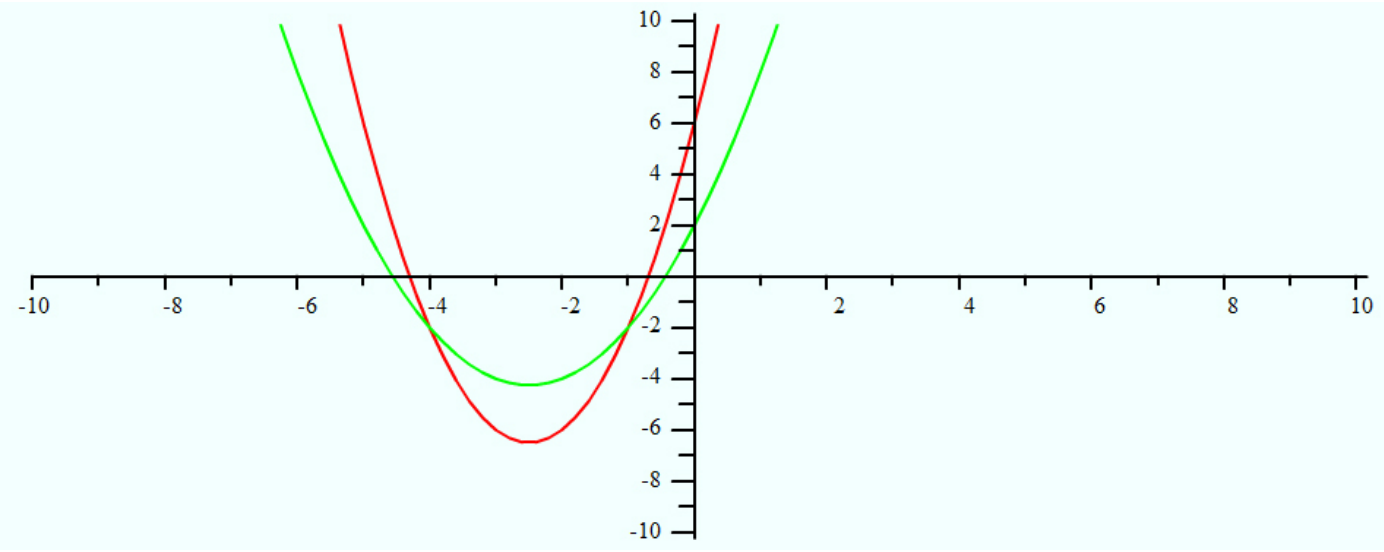
$f(-4) = 2(-4)^2 + 10(-4) + 6$ $\quad$ $g(-4) = -4^2 + 5(-4) + 2$

$= 32 - 40 + 6$ $\quad$ $= 16 - 20 + 2$

$= -2$ $\quad$ $= -2$

Step 3) We have f(-4) = g(-4) =-2. In other words, we use the value -4 for x, then the value of y is -2 for both equations. So, we will intersect the one point (-4, -2).

Step 4) f (-1) = 2(-1)2 + 10(-1) + 6 = -2. Hence, the second point of intersection is (-1, -2).



Name _____ Date _____

Explanation # 2

Step 1) First we have to see what is being asked.

Step 2) We have to solve the equations $7x^2 + 6x + 10 = 3x^2 - 2x + 6$.

$7x^2 + 6x + 10 = 3x^2 - 2x + 6$

$7x^2 - 3x^2 + 6x + 2x + 10 - 6 = 0$

$0 = 4x^2 + 8x + 4 = (x + 1)(x + 1)$

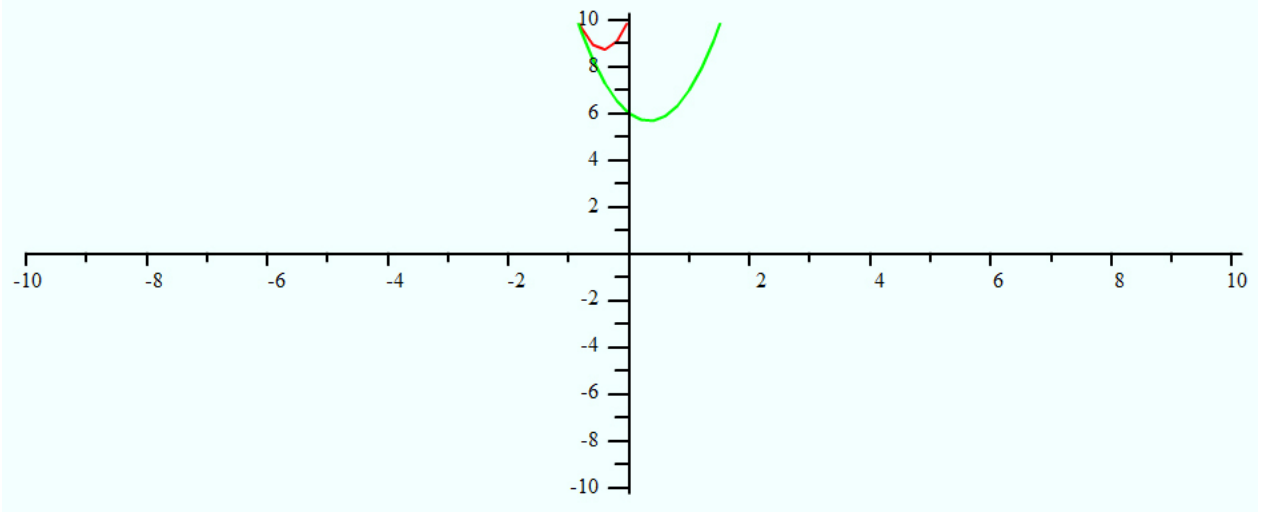
Now we got x value to check: x = -1. We put the x value in the equations.

$f(1) = 7(-1)^2 + 6(-1) + 10$ $\quad$ $g(1) = 3(-1)^2 - 2(-1) + 6$

$= 7 - 6 + 10$ $\quad$ $= 3 + 2 + 6$

$= 11$ $\quad$ $= 11$

Step 3) We have f(-1) = g(-1) =11. In other words, we use the value -1 for x, then the value of y is 11 for both equations. So, we will intersect the one point (-1, 11).



Name _____ Date _____

Explanation # 3

Step 1) First we have to see what is being asked.

Step 2) We have to solve the equations f(x) = and $g(x) = x^2 - 4x + 1$.

$2x^2 + 2x + 10 = x^2 - 4x + 1$

$2x^2 - x^2 + 2x + 4x + 10 - 1 = 0$

$0 = x^2 + 6x + 9 = (x + 3)\ (x + 3)$

Now we got x value to check: x = -3. We put the x value in the equations.

$f(-3) = 2(3)^2 + 2(-3) + 10$ $\qquad$ $g(-3) = (-3)^2 - 4(-3) + 1$

$= 18 - 6 + 10$ $\qquad$ $= 9 + 12 + 1$

$= 22$ $\qquad$ $= 22$

Step 3) We have f(-3) = g(-3) =22. In other words, we use the value -3 for x, then the value of y is 22 for both equations. So, we will intersect the one point (-3, 22).