April 20th

Due Today: 11.6

Due Next: 11.7

Unit 11: Function Operations

Lesson 11.7: Quiz + Solving Absolute Value Systems

Check your HW Answers:

1) (2,-6)
2) (-1,0) (-5, -8)
3) (-2, -1), (3 14)
4) (0, 1)
5) (0, 1) and (-1, -3)
6) Family: Radical
Domain: [-2, infinity)
Range : [1, infinity)
7) Family: Abs. Value
Domain: (-infinity , infinity)
Range: [3, infinity)

$f(x) = x^2 - 3x - 4, \quad g(x) = x - 8$

$x^2 - 3x - 4 = x - 8$

$-x \quad +8 \quad -x \quad +8$

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

$(x-2)(x-2) = 0$

$x - 2 = 0$

$x = 2$

$y = x - 8$

$= 2 - 8$

$y = -6$

$x = 2, y = -6$

$(2, -6)$

② $a(x) = (x+2)^2 - 1$, $b(x) = 2x - 2$

$(x+2)(x+2)$

$x^2 + 2x + 2x + 4$

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

$a(x) = x^2 + 4x + 3$

$x^2 + 4x + 3 = -2x - 2$

$+2x + 2 \quad +2x + 2$

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

$(x+5)(x+1) = 0$

$x = -5, -1$

5) $y = x^2 + 5x + 1$, $y = -4x^2 + 1$

$x^2 + 5x + 1 = -4x^2 + 1$

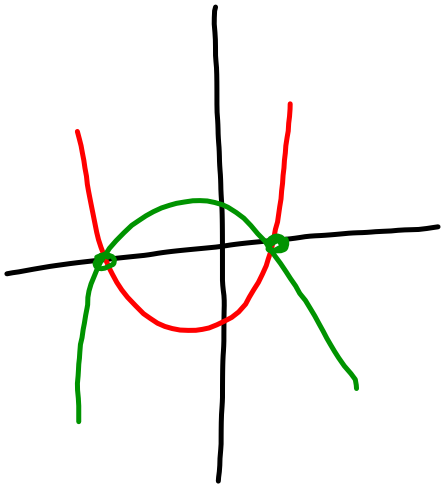
$+4x^2 \quad -1 \quad +4x^2 \quad -1$

$5x^2 + 5x = 0$

$5x(x+1) = 0$

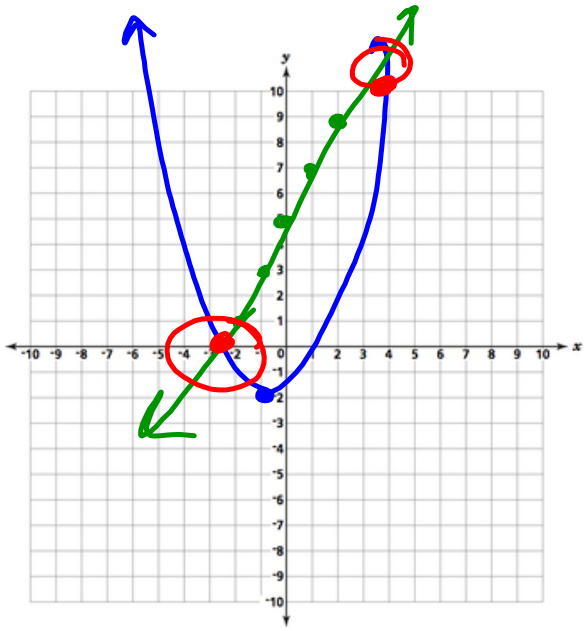
$5x = 0 \qquad x + 1 = 0$

$x = 0 \qquad x = -1$



$y=(x+1)^2-2$

$y=3x+5$



How can we factor this?

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

acgc

factor -1

$-1(x^2 + 5x - 6) = 0$

-1

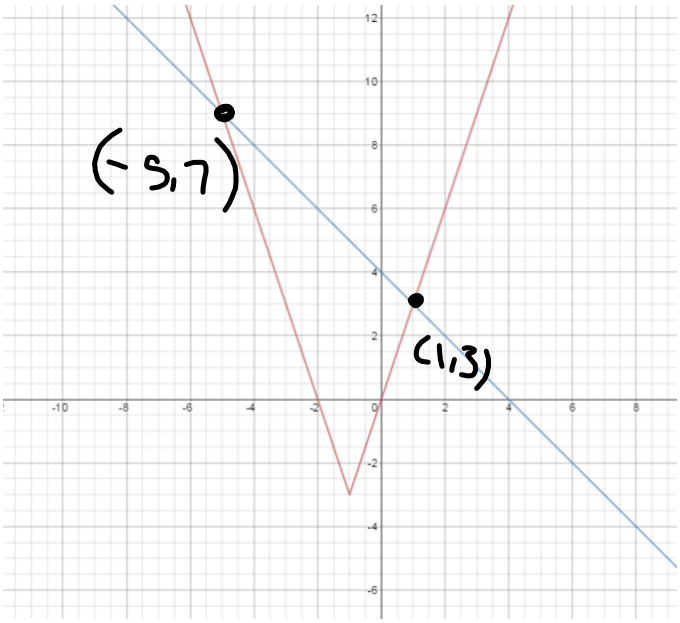
$x^2 + 5x - 6 = 0$

Quiz!

Can we solve THIS?!

$p(x) = |3x + 3| - 3$ $q(x) = -x + 4$

first... let's look at the graph!



How to solve it algebraically:

$p(x) = |3x + 3| - 3$ $q(x) = -x + 4$

$$|3x+3| - 3 = -x + 4$$
$$+3 \qquad +3$$
$$|3x+3| = -x + 7$$

$3x+3 = -x+7$
$+x \qquad +x$
$4x+3 = 7$
$-3 \quad -3$
$\frac{4x}{4} = \frac{4}{4}$
$x = 1$

$y = -x + 4$
$= -1 + 4$
$y = 3$

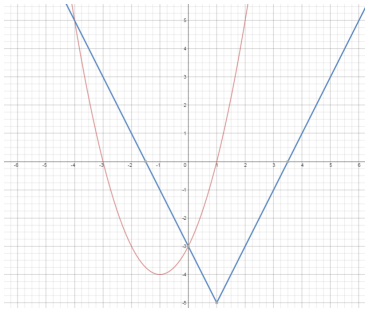
$-3x-3 = -x+7$
$+x \qquad +x$
$-2x-3 = 7$
$+3 \quad +3$
$\frac{-2x}{-2} = \frac{10}{-2}$
$x = -5$

$y = -x + 4$
$= -(-5) + 4$
$y = 9$

$x = 1, y = 3$ and $x = -5, y = 9$

How to solve it algebraically:

$a(x) = x^2 + 2x - 3$ $b(x) = |2x - 2| - 5$



$x^2 + 2x - 3 = |2x - 2| - 5$

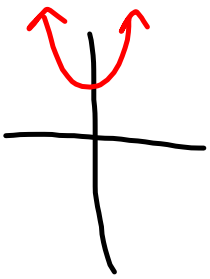
$+5 \quad +5$

$x^2 + 2x + 2 = |2x - 2|$

$x^2 + 2x + 2 = 2x - 2$

$-2x + 2 \quad -2x + 2$

$x^2 + 4 = 0$



yeilds no Solutions

$x^2 + 2x + 2 = -2x + 2$

$+2x - 2 \quad +2x - 2$

$x^2 + 4x = 0$

$x(x + 4) = 0$

$x = 0, \quad x = -4$

$y = x^2 + 2x - 3$

$y = 0^2 + 2(0) - 3$

$y = -3$

$= (-4)^2 + 2(-4) - 3$

$= 16 - 8 - 3$

$= 8 - 3$

$y = 5$

$X = 0, y = -3$ and $X = -4, y = 5$

11.7 Practice

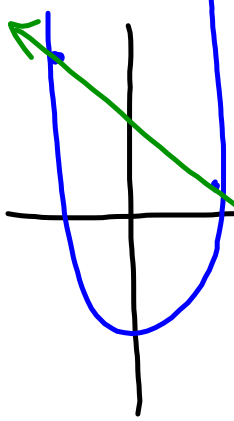
- Use the Shift method to solve the system GRAPHICALLY

- Solve the systems ALGEBRAICALLY to confirm your solution

- SHOW ALL OF YOUR WORK!

Unit 11: Function Operations

Lesson #	Name	Recap	HW
11.1	Families of Functions		HW 11.1
11.2	Domain and Range of Functions		HW 11.2
11.3	Shifting Functions		Finish 11.3 QUIZ FRIDAY Delta
11.4	QUIZ + Delta		
11.5	Solving Systems Graphically		HW 11.5 *calculator*
11.6	Solving systems algebraically		HW 11.6 QUIZ!
11.7	Quiz + More solving systems		HW 11.7 Spring Break: DELTA MATH



$y = x^2 - 4x + 2 \quad y = -x + 6$

$+x \quad -6 \qquad +x \quad -6$

$x^2 - 3x - 4 = 0$

$(x-4)(x+1) = 0$

$x-4=0 \qquad x+1=0$

$x = 4, -1$

x	y_1	y_2
-1	7	7
4	2	2

$y = -x + 6$

$x = 4$

$y = -4 + 6$

$= 2$

$x = -1$

$y = 1 + 6$

$= 7$

$x = 4, y = 2$ and $x = -1, y = 7$

$4+x^2 = -y-4x+3$, $0 = x^2-y-7$

$+4 \quad +y \qquad +y \quad +y$

$y+4+x^2 = -4x+3$

$-4 \quad -x^2 \quad -x^2 \quad -4$

$y = -x^2-4x-1$ $\qquad$ $y = x^2-7$

$(1,-6) \quad (-3,2)$

$-x^2-4x-1 = x^2-7$

$-x^2 \quad +1 \quad -x^2 \quad +7$

$-2x^2-4x+6 = 0$

$-2(x^2+2x-3) = 0$

$-2 \qquad -2$

$x^2+2x-3 = 0$

$(x+3)(x-1) = 0$

$x+3 = 0 \quad , \quad x-1 = 0$

$x = -3, 1$

$y = x^2-7$

$x=-3$ $\qquad$ $x=1$

$(-3)^2-7 \qquad 1^2-7$

$9-7 \qquad 1-7$

$2 \qquad -6$

$x=-3, y=2$ and $x=1, y=-6$