Algebra RH **Answer Key** **HW #__________**

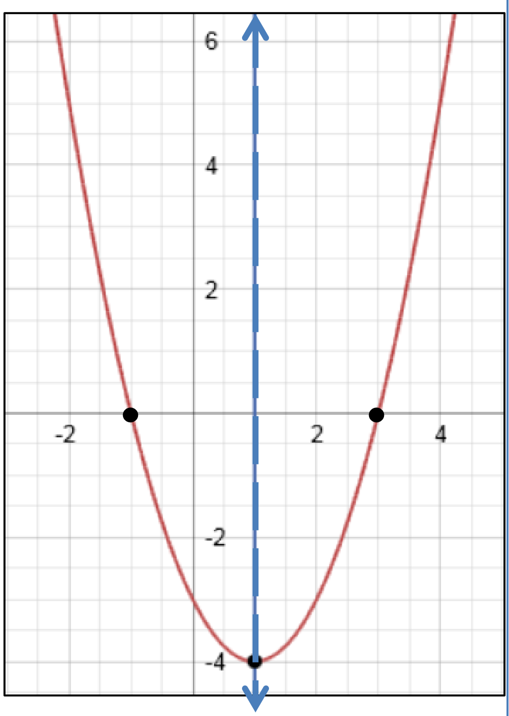
1. $y = x^2 - 2x - 3$

$$x = \frac{-b}{2a} = \frac{-(-2)}{2(1)} = 1$$

x	y
-2	5
-1	0
0	-3
1	-4
2	-3
3	0
4	5

Roots: {-1, 3}

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



$x = 1$

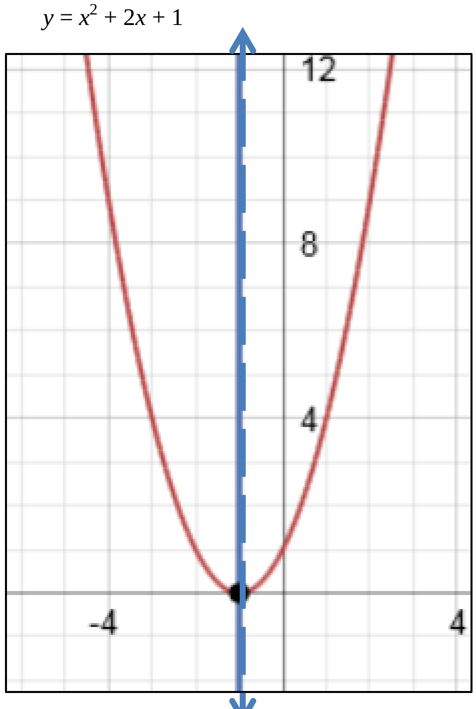
2. $y = x^2 + 2x + 1$

$$x = \frac{-b}{2a} = \frac{-2}{2(1)} = -1$$

x	y
-4	9
-3	4
-2	1
-1	0
0	1
1	4
2	9

Root: {-1}

$y = x^2 + 2x + 1$



$x = -1$

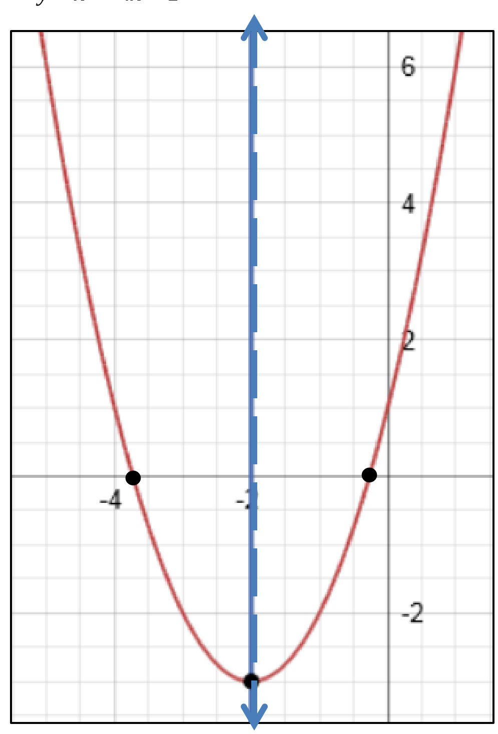
3. $y = x^2 + 4x + 1$

$$x = \frac{-b}{2a} = \frac{-4}{2(1)} = -2$$

x	y
-5	6
-4	1
-3	-2
-2	-3
-1	-2
0	1
1	6

Roots: $\{-3.7, -0.3\}$

$y = x^2 + 4x + 1$



$x = -2$

4. $y = x^2 - 5x + 4$

$0 = x^2 - 5x + 4$

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

$x - 1 = 0$ | $x - 4 = 0$

$x = 1$ | $x = 4$

Roots: {1, 4}

5. $y = 2x^2 - 4$

$0 = 2x^2 - 4$

$4 = 2x^2$

$2 = x^2$

$x = \pm\sqrt{2}$

$x = \sqrt{2} \;\; or \;\; -\sqrt{2}$

Roots: $\{\mathbf{1.4}, -\mathbf{1.4}\}$

6. $y = x^2 - 4x + 7$

$0 = x^2 - 4x + 7$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{4 \pm \sqrt{(-4)^2 - 4(1)(7)}}{2(1)}$$

$$x = \frac{4 \pm \sqrt{-12}}{2}$$

You cannot take the square root of a negative number. What does this mean? The related graph does not have any real roots, meaning, there are no *x*-intercepts.