

# Graphing Quadratics HW\_1

Tuesday, April 28, 2015

Multiply

1.  $(2x - 4)(6x - 8)$   
 $12x^2 - 40x + 32$

Multiply

2.  $(x - 6)(x + 2)$   
 $x^2 - 4x - 12$

Factor

3.  $x^2 - 10x + 16$   
 $(x - 6)(x - 4)$

Factor

4.  $3x^2 + 22x + 40$   
 $(3x + 10)(x + 4)$

Solve

5.  $x^2 - 4x - 32 = 0$   
 $(x - 8)(x + 4) = 0$   
 $x = 8$  or  $x = -4$

Solve

6.  $-2x^2 + 12x - 12 = 4$   $x = 4$  or  $x = 2$

$$\begin{aligned} & \quad \quad \quad -4 \quad -4 \\ \hline -2x^2 + 12x - 16 &= 0 \\ -2(x^2 - 6x + 8) &= 0 \\ -2(x - 4)(x - 2) &= 0 \end{aligned}$$

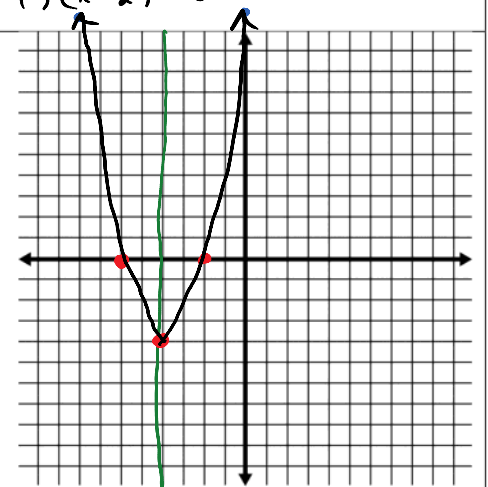
Graph

7.  $y = x^2 + 8x + 12$

① Vertex:  
 $x = \frac{-b}{2a} = \frac{-8}{2(1)} = -4$   
 $y = (-4)^2 + 8(-4) + 12 = 16 - 32 + 12 = -4$   
 Vertex:  $(-4, -4)$

② y-intercept:  
 $y = (0)^2 + 8(0) + 12 = 12$   
 y-intercept:  $(0, 12)$

③ x-intercepts:  
 $0 = x^2 + 8x + 12$   
 $0 = (x + 6)(x + 2)$   
 $x = -6$  or  $x = -2$   
 x-intercepts:  $(-6, 0)$  and  $(-2, 0)$



Graph

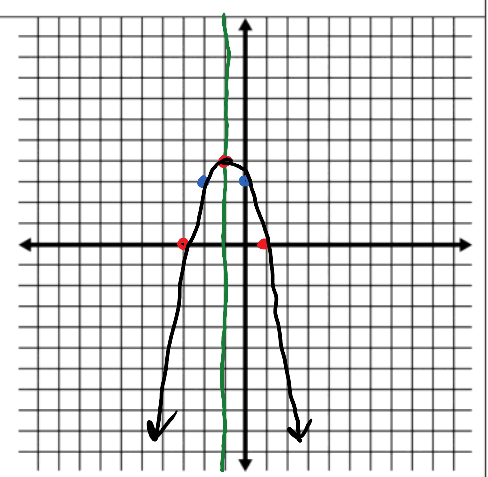
8.  $a = -1$   $b = -2$   $c = 3$   
 $y = -x^2 - 2x + 3$

$x = \frac{-b}{2a} = \frac{-(-2)}{2(-1)} = \frac{2}{-2} = -1$   
 $y = -(-1)^2 - 2(-1) + 3 = -1 + 2 + 3 = 4$   
 vertex:  $(-1, 4)$

y-intercept:  $(0, 3)$

x-intercepts:  $(-3, 0)$  and  $(1, 0)$

$0 = -x^2 - 2x + 3$   
 $0 = -1(x^2 + 2x - 3)$   
 $0 = -1(x + 3)(x - 1)$   
 $x = -3$  or  $x = 1$



Graph

9.  $y = x^2 + 10x + 21$

① Vertex

$$x = \frac{-b}{2a}$$

$$x = \frac{-10}{2(1)}$$

$$x = -5$$

$$y = (-5)^2 + 10(-5) + 21$$

$$y = 25 - 50 + 21$$

$$y = -4$$

$$(-5, -4)$$

③ x-intercepts

$$0 = x^2 + 10x + 21$$

$$0 = (x+7)(x+3)$$

$$x = -7 \text{ and } x = -3$$

$$(-7, 0), (-3, 0)$$

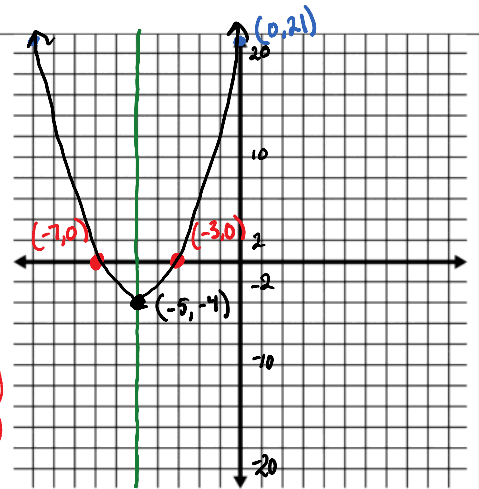
② y-intercept

$$y = (0)^2 + 10(0) + 21$$

$$y = 21$$

$$(0, 21)$$

Note: The scale on the y-axis needed to be changed to fit the y-intercept



Graph

10.  $y = x^2 - 4$

① Vertex

$$x = \frac{-b}{2a}$$

$$x = \frac{-0}{2(1)}$$

$$x = 0$$

$$y = (0)^2 - 4$$

$$y = -4$$

$$(0, -4)$$

③ x-intercepts

$$0 = x^2 - 4$$

$$+4 \quad +4$$

$$4 = x^2$$

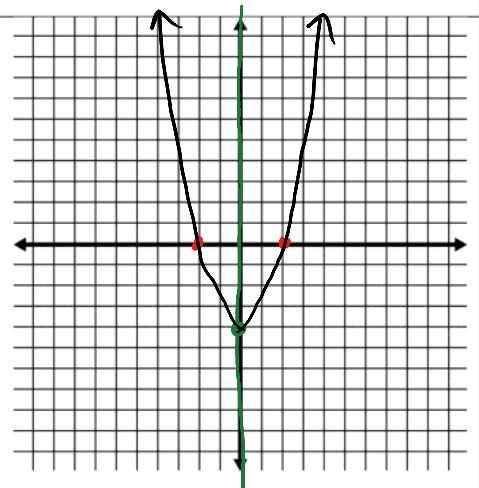
$$x = \pm\sqrt{4}$$

$$x = 2 \text{ or } x = -2$$

$$(2, 0), (-2, 0)$$

② y-intercept:

$$(0, -4)$$



Graph

11.  $y = -2x^2 + 14x - 24$

① Vertex

$$x = \frac{-b}{2a}$$

$$x = \frac{-14}{2(-2)}$$

$$x = 3.5$$

$$y = -2(3.5)^2 + 14(3.5) - 24$$

$$y = -24.5 + 49 - 24$$

$$y = 0.5$$

$$(3.5, 0.5)$$

③ x-intercept

$$0 = -2x^2 + 14x - 24$$

$$0 = -2(x^2 - 7x + 12)$$

$$0 = -2(x-4)(x-3)$$

$$x = 4 \text{ and } x = 3$$

$$(4, 0) \text{ and } (3, 0)$$

② y-intercept

$$y = -2(0)^2 + 14(0) - 24$$

$$y = -24$$

$$(0, -24)$$

