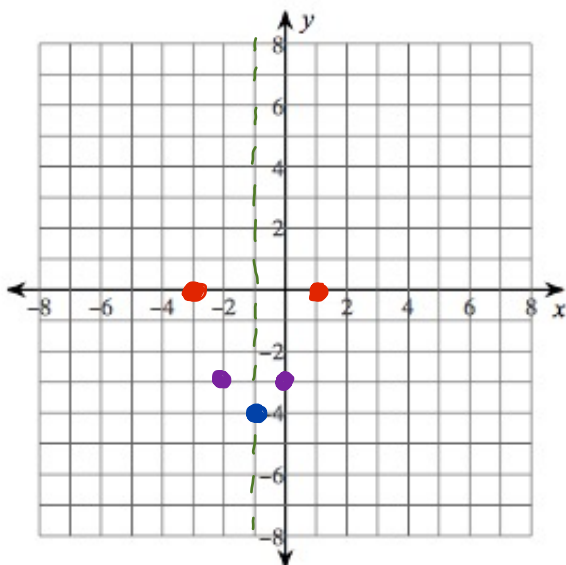


$$a(x-p)(x-q)$$

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



- Up or Down?

UP

- X - Intercepts?

$(1, 0)$ $(-3, 0)$

- Coordinate of the Vertex?

$$x = \frac{-3+1}{2} \rightarrow \frac{-2}{2} \rightarrow -1 \quad \left| \begin{array}{l} (-1-1)(-1+3) \\ (-2)(2) \end{array} \right| \quad (-1, -4)$$

- Line of Symmetry?

$x = -1$

- Y - Intercept?

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

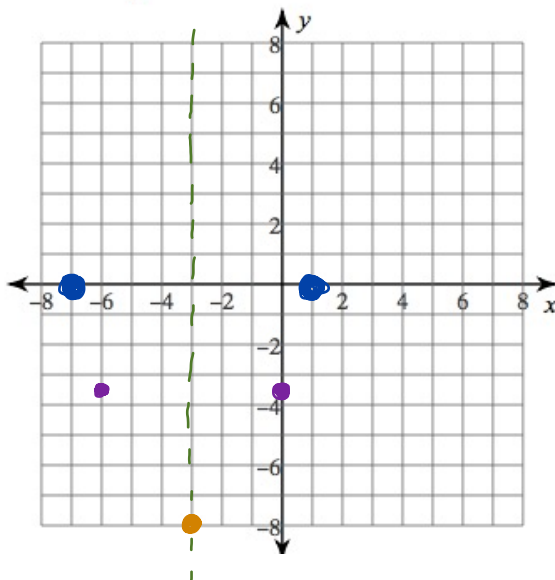
$(-1)(3)$

-3

$(0, -3)$

$$a(x-p)(x-q)$$

$$2) f(x) = \frac{1}{2}(x-1)(x+7)$$



- Up or Down?

- X - Intercepts?

$(1, 0)$ $(-7, 0)$

- Coordinate of the Vertex?

$$x = \frac{1+(-7)}{2} \rightarrow \frac{-6}{2} \rightarrow -3 \quad \left| \begin{array}{l} \frac{1}{2}(-3-1)(-3+7) \\ \frac{1}{2}(-4)(4) \end{array} \right| \quad (-3, -8)$$

- Line of Symmetry?

$x = -3$

- Y - Intercept?

$$\frac{1}{2}(0-1)(0+7)$$

$\frac{1}{2}(-1)(7)$

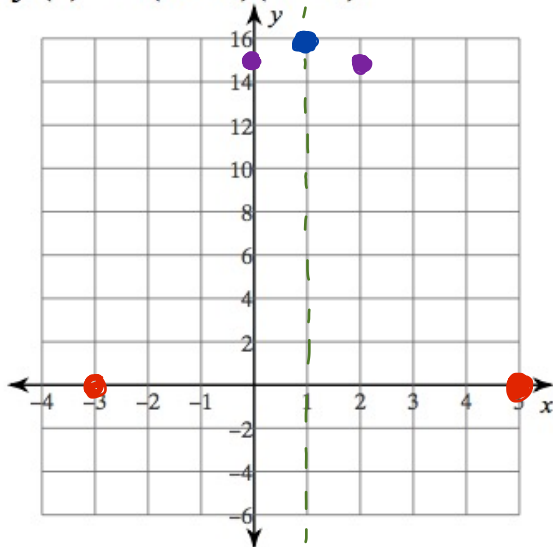
$\frac{1}{2}(-7)$

-3.5

$(0, -3.5)$

$$a(x-p)(x-q)$$

$$3) f(x) = -(x+3)(x-5)$$



• Up or Down?

• X - Intercepts?

$$(-3, 0) (5, 0)$$

• Coordinate of the Vertex?

$$x = \frac{-3+5}{2} \rightarrow \frac{2}{2} \rightarrow 1 \quad \left| \begin{array}{l} -(1+3)(1-5) \\ -(4)(-4) \end{array} \right| (1, 16)$$

• Line of Symmetry?

$$x = 1$$

• Y - Intercept?

$$-(0+3)(0-5)$$

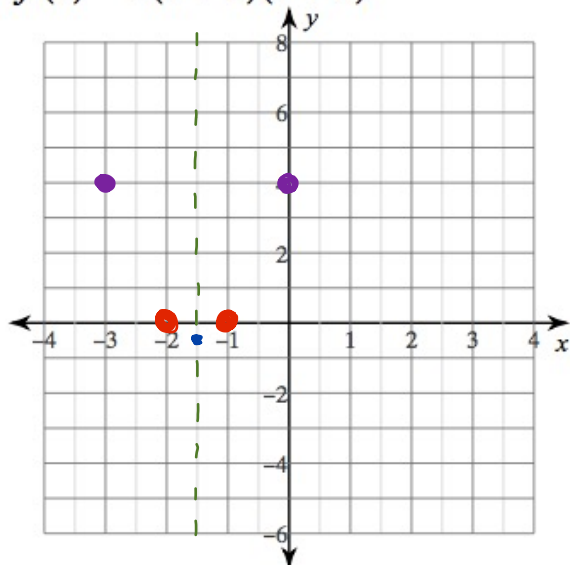
$$-(3)(-5)$$

$$15$$

$$(0, 15)$$

$$a(x-p)(x-q)$$

$$4) f(x) = 2(x+1)(x+2)$$



• Up or Down?

• X - Intercepts?

$$(-1, 0) (-2, 0)$$

• Coordinate of the Vertex?

$$x = \frac{-1+(-2)}{2} \rightarrow \frac{-3}{2} \rightarrow -1.5 \quad \left| \begin{array}{l} 2(-1.5+1)(-1.5+2) \\ 2(-.5)(.5) \end{array} \right| (-1.5, -.5)$$

• Line of Symmetry?

$$x = -1.5$$

• Y - Intercept?

$$2(0+1)(0+2)$$

$$2(1)(2)$$

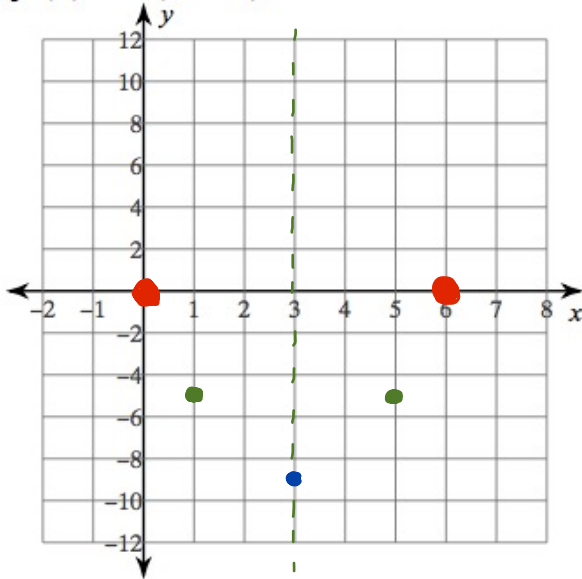
$$4$$

$$(0, 4)$$

$$a(x-p)(x-q)$$

$$1(x+0)(x-6)$$

5) $f(x) = x(x-6)$



Up or Down?

X - Intercepts?
 $(0,0)$ $(6,0)$

Coordinate of the Vertex?
 $x = \frac{0+6}{2} \rightarrow \frac{6}{2} \rightarrow 3$ | $\begin{matrix} 3(3-6) \\ 3(-3) \\ -9 \end{matrix}$ | $(3,-9)$

Line of Symmetry?
 $x = 3$

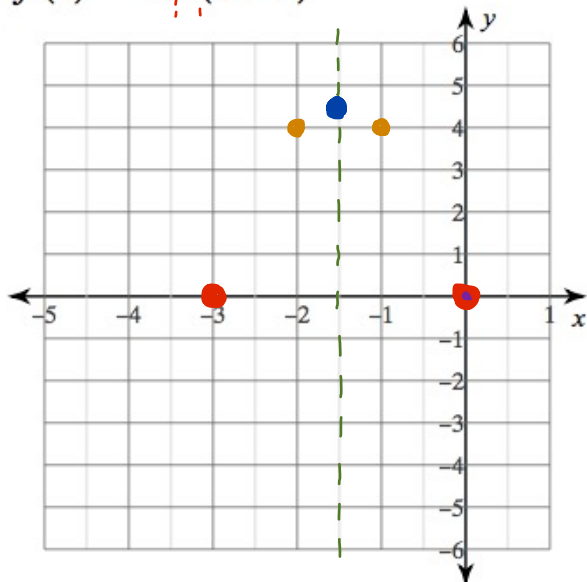
Y - Intercept?
 $0(0-6)$
 $0(-6)$
 0
 $(0,0)$

Strategic Pt.
 $1(1-6)$
 $1(-5) \rightarrow (1,-5)$
 -5

* This point already exists on the graph. Must use strategic point.

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

6) $f(x) = -2x(x+3)$



• Up or Down?

• X - Intercepts?
 $(0,0)$ $(-3,0)$

• Coordinate of the Vertex?
 $x = \frac{0+(-3)}{2} \rightarrow \frac{-3}{2} \rightarrow -1.5$ | $\begin{matrix} -2(-1.5)(-1.5+3) \\ 3(1.5) \\ 4.5 \end{matrix}$ | $(-1.5, 4.5)$

• Line of Symmetry?
 $x = -1.5$

• Y - Intercept?
 $-2(0)(0+3)$
 $0(3)$
 0
 $(0,0)$

Strategic Point
 $-2(-1)(-1+3)$
 $2(2)$
 4
 $(-1, 4)$

* This point already exists on the graph. Must use strategic point.