

NAME _____

DATE _____

GRAPH PARABOLA: Worksheet 1

Graph each quadratic function (parabola). Graph by answering the following.

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

a) Identify a , b , and c .

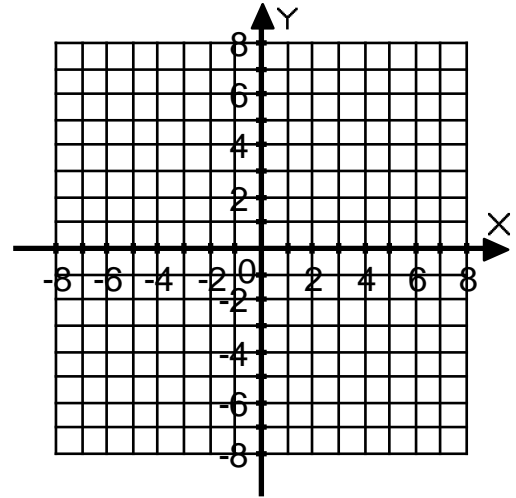
b) Find the line of symmetry:

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

c) Find the vertex.

d) Name the y -intercept.

e) Plot a point (P) symmetrical to the y -intercept.
If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point.



2) $y = \frac{1}{2}x^2$

a) Identify a , b , and c .

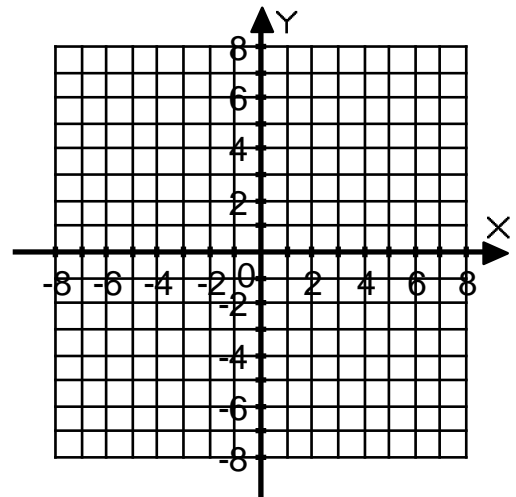
b) Find the line of symmetry:

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

c) Find the vertex.

d) Name the y -intercept.

e) Plot a point (P) symmetrical to the y -intercept.
If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point.



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

a) Identify a , b , and c .

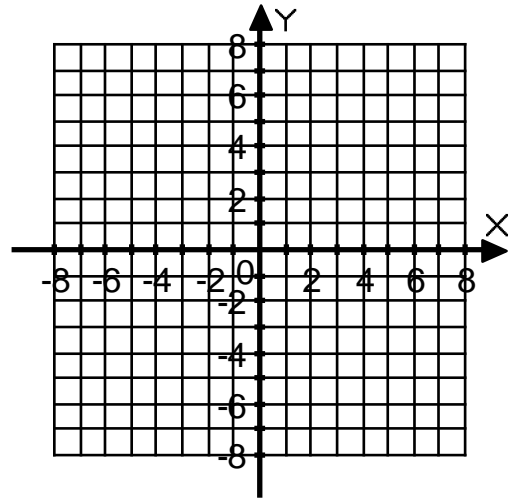
b) Find the line of symmetry:

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

c) Find the vertex.

d) Name the y -intercept.

e) Plot a point (P) symmetrical to the y -intercept.
If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point.



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

a) Identify a , b , and c .

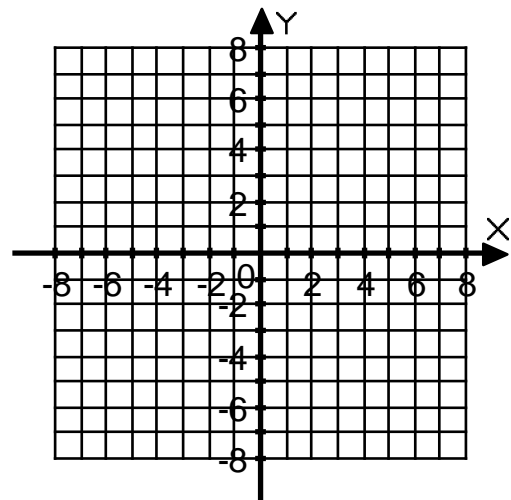
b) Find the line of symmetry:

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

c) Find the vertex.

d) Name the y -intercept.

e) Plot a point (P) symmetrical to the y -intercept.
If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point.



KEY

GRAPH PARABOLA: Worksheet 1

Graph each quadratic function (parabola). Graph by answering the following.

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

a) Identify $a, b,$ and $c.$ $a = 1, b = 4, c = 1$

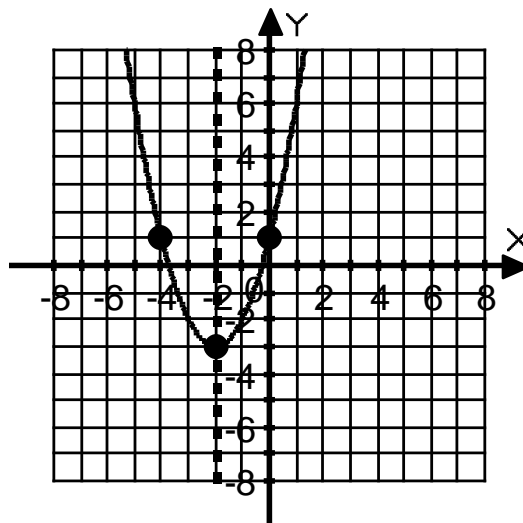
b) Find the line of symmetry:

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

c) Find the vertex. $V(-2,-3)$

d) Name the y -intercept. 1

e) Plot a point (P) symmetrical to the y -intercept. If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point. $P(-4,1)$



2) $y = \frac{1}{2}x^2$

a) Identify $a, b,$ and $c.$ $a = \frac{1}{2}, b = 0, c = 0$

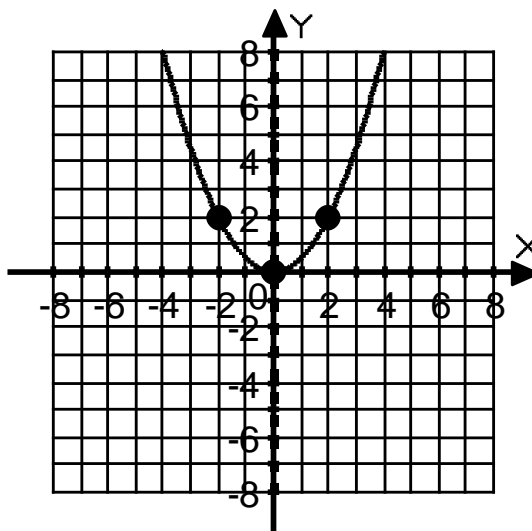
b) Find the line of symmetry:

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

c) Find the vertex. $V(0,0)$

d) Name the y -intercept. 0

e) Plot a point (P) symmetrical to the y -intercept. If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point. Let $x = 2$. If $x = 2$, then $y = 2$. $P(-2,2)$



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

a) Identify a , b , and c . $a = 2, b = 4, c = -2$

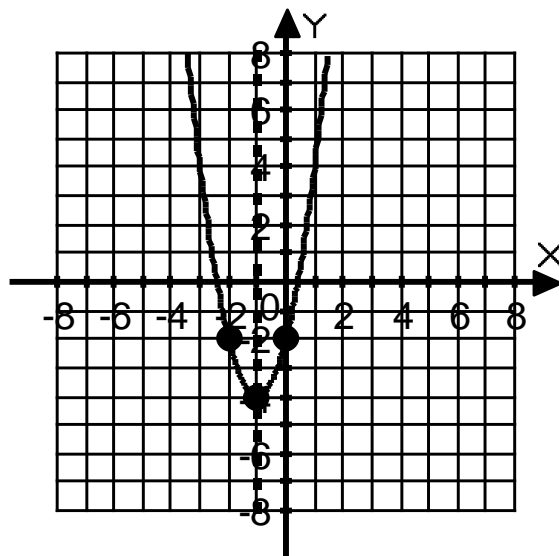
b) Find the line of symmetry:

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

c) Find the vertex. $V(-1, -4)$

d) Name the y -intercept. -2

e) Plot a point (P) symmetrical to the y -intercept. If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point. $P(-2, -2)$



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

a) Identify a , b , and c . $a = -1, b = -4, c = 2$

b) Find the line of symmetry:

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

c) Find the vertex. $V(-2, 6)$

d) Name the y -intercept. 2

e) Plot a point (P) symmetrical to the y -intercept. If the vertex is on the line of symmetry, find another point by substituting a new x and then find a symmetrical point. $P(-4, 2)$

