

# 5-1 ... ish Graphing Quadratics

I. You need 3 things:

A. Vertex

B. Two random points

→ Easiest: x-values close to the vertex "x"  
↳ on the same side

ex/ vertex is (5, 13)

$$\begin{aligned} x=6 \\ x=7 \end{aligned}$$

OR  $\begin{aligned} x=4 \\ x=3 \end{aligned}$

~~NOT~~  $\begin{aligned} x=4 \\ x=6 \end{aligned}$  different sides of 5

→ plug 'em in to find y & graph pts!

II. The rule...

A. The left side is the same as the right.

SO, just reflect the points over the axis of symmetry!

ex/  $f(x) = -(x+1)^2 - 3$

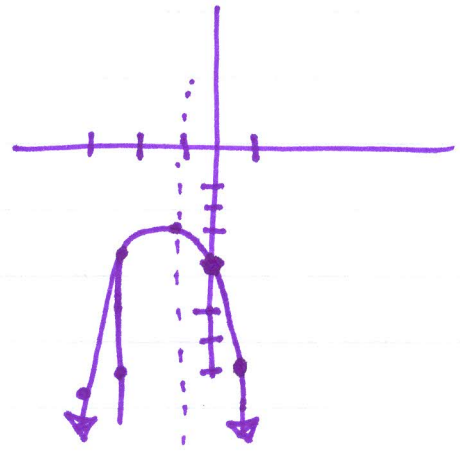
v: (-1, -3)

1pt: (0, -4)

2pt: (1, -7)

$$\begin{aligned} x=0 & -(0+1)^2 - 3 \\ & -(1)^2 - 3 \\ & -1 - 3 \\ & = -4 \end{aligned}$$

$$\begin{aligned} x=1 & -(1+1)^2 - 3 \\ & -(2)^2 - 3 \\ & -4 - 3 \\ & = -7 \end{aligned}$$



ex/  $f(x) = x^2 + 2x + 2$

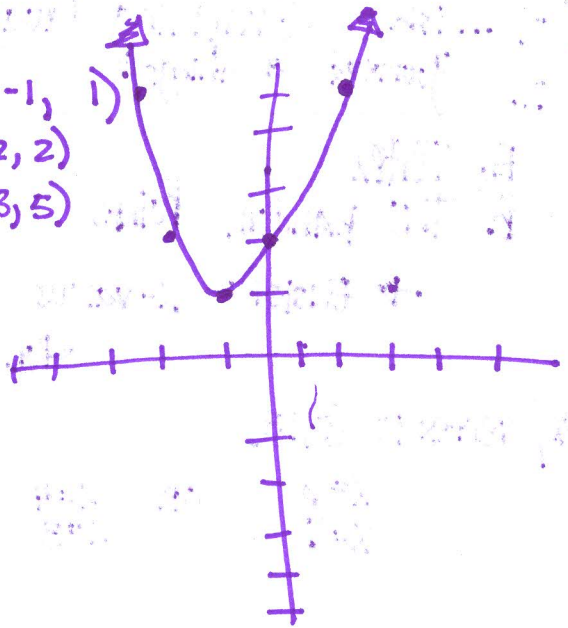
v:  $x = -\frac{b}{2a} = -\frac{2}{2(1)} = -1$

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

vertex:  $(-1, 1)$

1pt:  $(-2, 2)$

2pt:  $(-3, 5)$



$x = -2$

$(-2)^2 + 2(-2) + 2$

$4 - 4 + 2$   
 $= 2$

$x = -3$

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

$= 9 - 6 + 2$

$= 3 + 2 = 5$

