Graphing Parabolas with Vertex at (h,k)

Name _____

Date _____ Period _____

Equation of a Parabola with vertex (h,k)

$|a|$ stretches or compresses parabola
$a > 0$ opens up; $a < 0$ opens down

h gives the x-coordinate of the vertex

$$y = a(x - h)^2 + k$$

k gives the y-coordinate of the vertex

Equation of a Parabola with vertex (h,k)

$|a|$ stretches or compresses parabola
$a > 0$ opens right; $a < 0$ opens left

h gives the x-coordinate of the vertex

$$x = a(y - k)^2 + h$$

k gives the y-coordinate of the vertex

Equation of a Parabola with vertex (h,k)

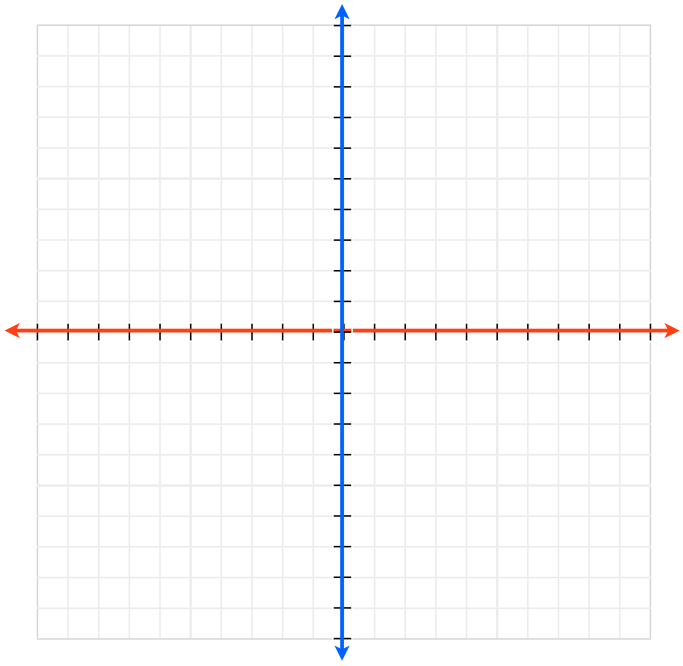
$y = a(x - h)^2 + k$ $\quad$ $x = a(y - k)^2 + h$

Given parabolic equation, label a, h, and k.

$y = -2(x - 5)^2 - 1$ $\quad$ $x = (y - 1)^2$ $\quad$ $y = -x^2 + 6$ $\quad$ $x = \frac{1}{4}(y + 4)^2 - 2$

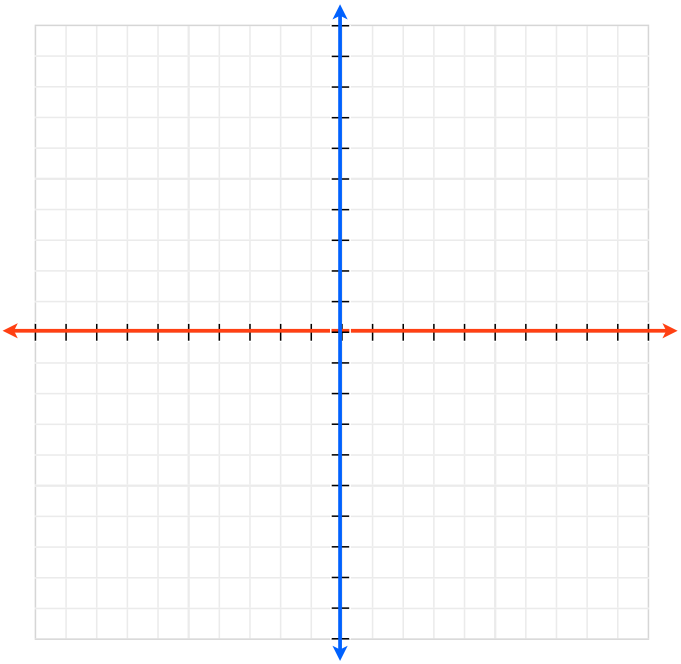
Graph the following parabola

$$y = \frac{1}{16}(x - 2)^2 + 4$$



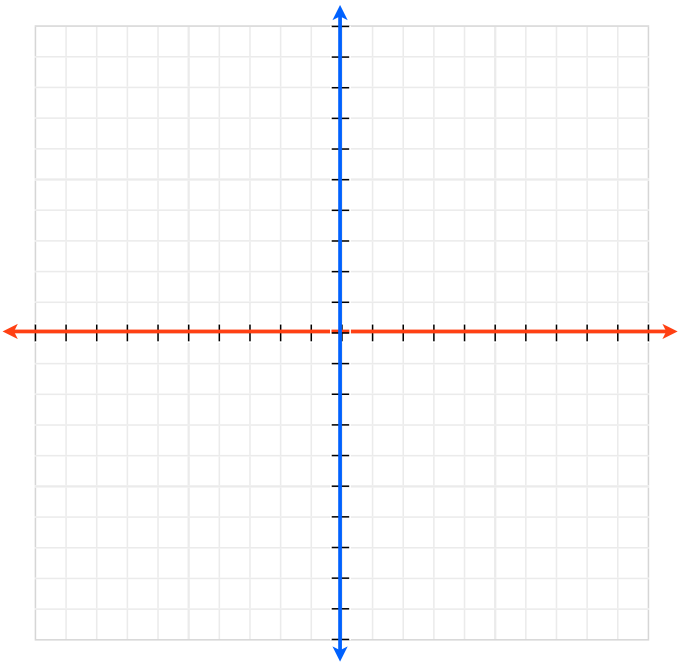
Graph the following parabola

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



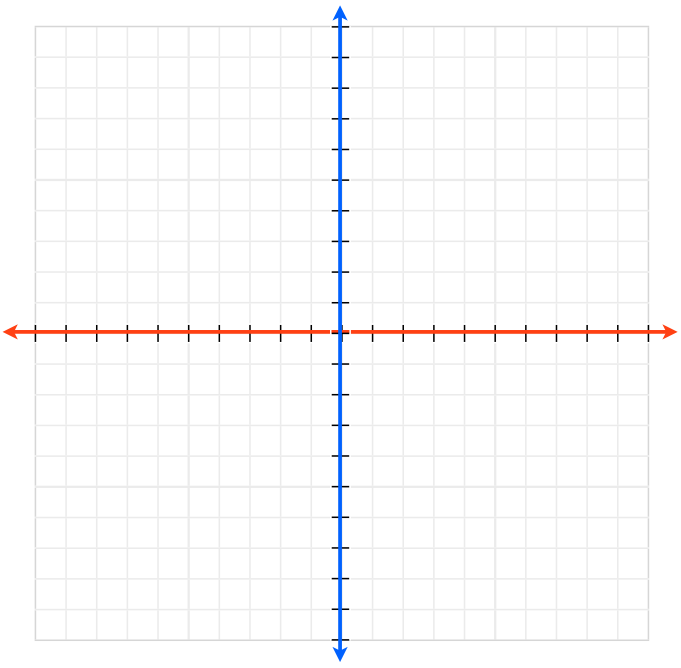
Graph the following parabola

$$x = -\frac{1}{4}(y + 1)^2 - 2$$

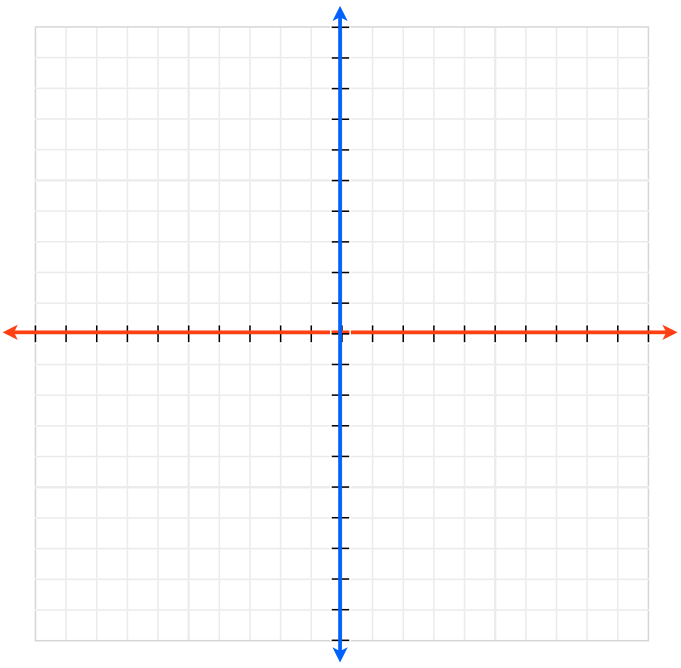


Graph the following parabola

$$x = \frac{1}{8}(y - 4)^2 + 3$$



Find the equation of a parabola with vertex at (1,-3) and focus at point (3,-3).



Find the equation of a parabola with vertex at (-3,2) and directrix at line $y = 6$