

Graphing Quadratics

Subject: Algebra 2

Level: High School

Objective: Graphing of Quadratic Equations in
 $f(x)=a(x-h)^2+k$ form

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

1. Label find h and k (hint h is always the opposite sign of what is in the problem and k is always the same sign as is in the problem)

$$y = a(x - h)^2 + k \quad \begin{array}{l} h = -1 \\ k = -4 \end{array}$$

2. Find the Vertex

$$(h, k) \rightarrow (-1, -4)$$

3. Find the Axis of Symmetry

$$X = h \rightarrow X = -1$$

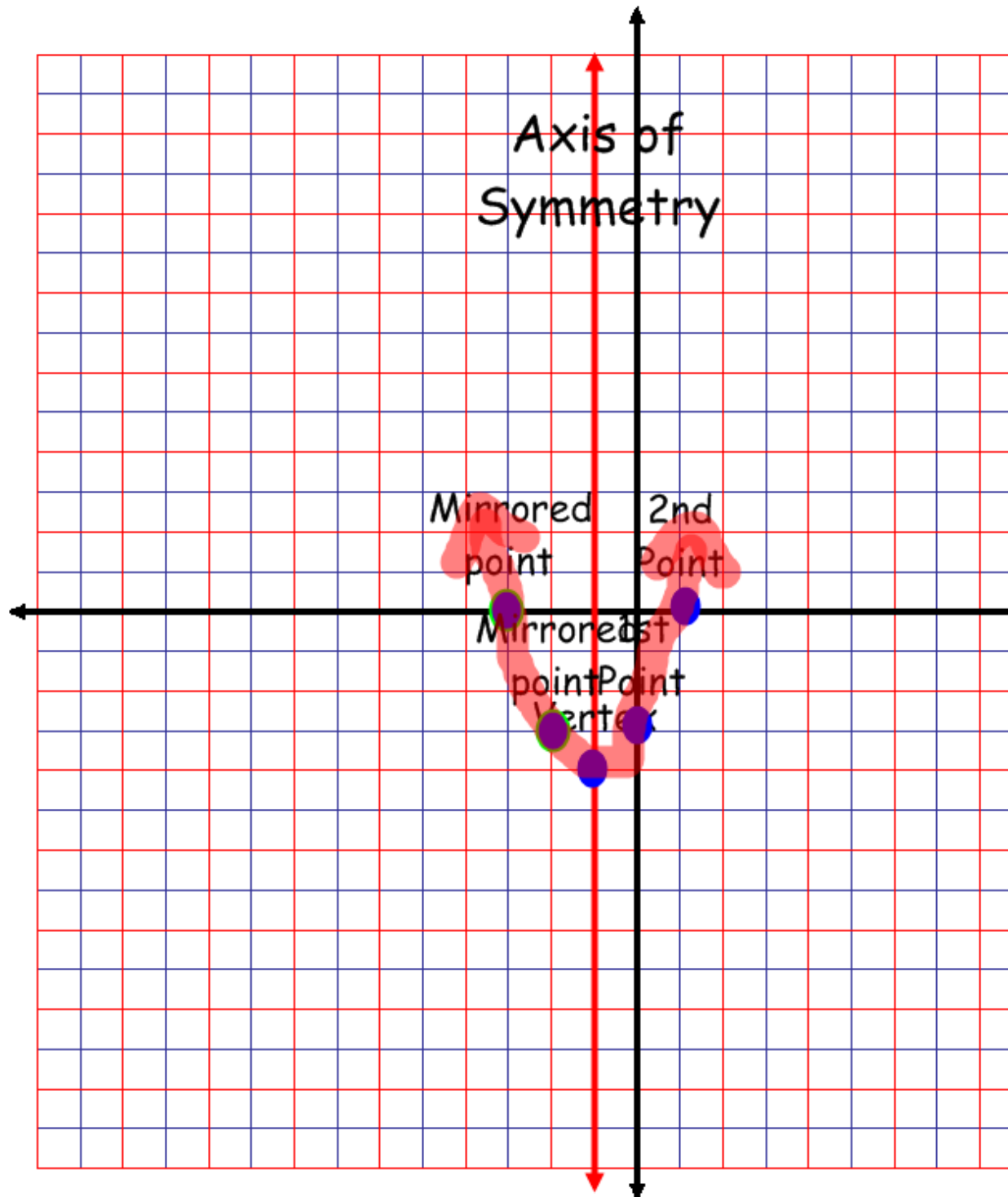
4. Find one point on the function

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

5. Find another point on the side of the axis of symmetry

$$\begin{aligned} X &= 1 & y &= (1+1)^2 - 4 \\ (1, 0) & & y &= (2)^2 - 4 \\ & & y &= 4 - 4 = 0 \end{aligned}$$

6. Mirror the point over the axis of symmetry and graph the parabola



Axis of
Symmetry
 $x = -1$

Vertex
 $(-1, -4)$

first
point
 $(0, -3)$

Second
Point

$(1, 0)$