5.6 Solve Problems Involving Quadratic Relations
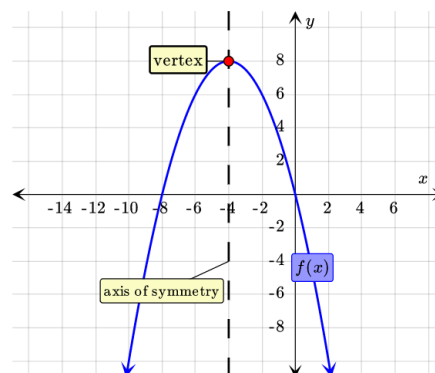
A Vertex Form
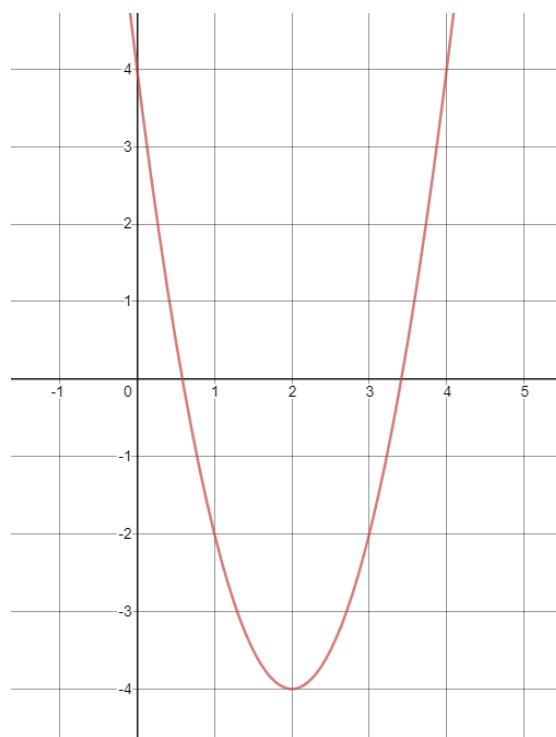
The Vertex Form of a quadratic relation

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

allows

- ✓ Finding the vertex point: $V(h, k)$
- ✓ Finding the y-intercept: substitute $x = 0$ and find y
- ✓ Finding the equation of the axis of symmetry: $x = h$

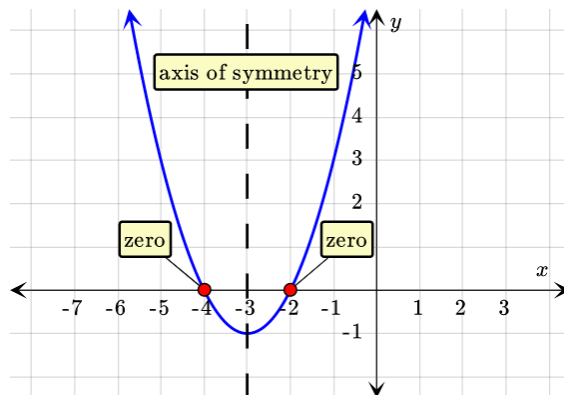Example 1. Find the equation of the following quadratic relation given graphically.

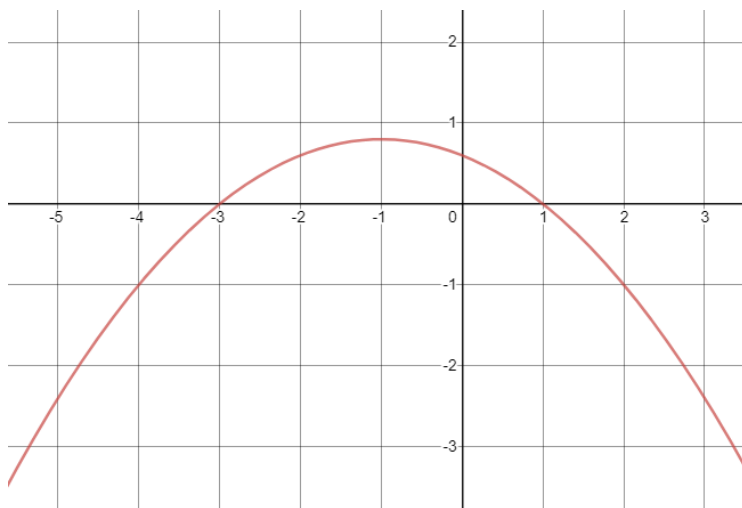**B Factored Form**

The Factored Form of a quadratic relation

$$y = a(x - x_1)(x - x_2)$$

allows

- ✓ Finding the x-intercepts x_1 and x_2
- ✓ Finding the y-intercept: substitute $x = 0$ and find y
- ✓ Finding the x coordinate of the vertex point: $h = \frac{x_1 + x_2}{2}$
- ✓ Finding the y coordinate od the vertex point: substitute $x = h$ and find k
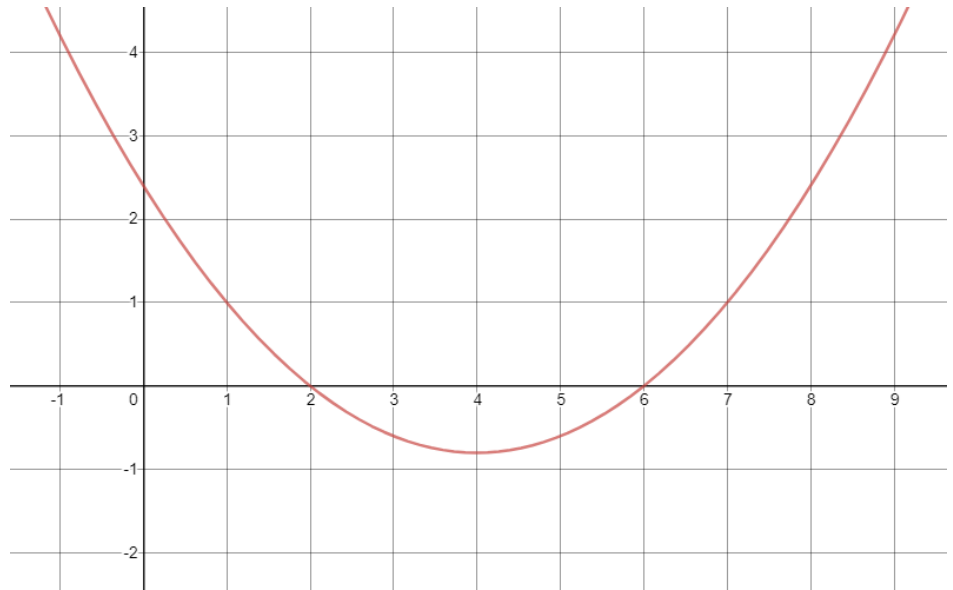
Example 2. Find the equation of the following quadratic relation given graphically.

Example 3. Find the equation of the following quadratic relation given graphically.
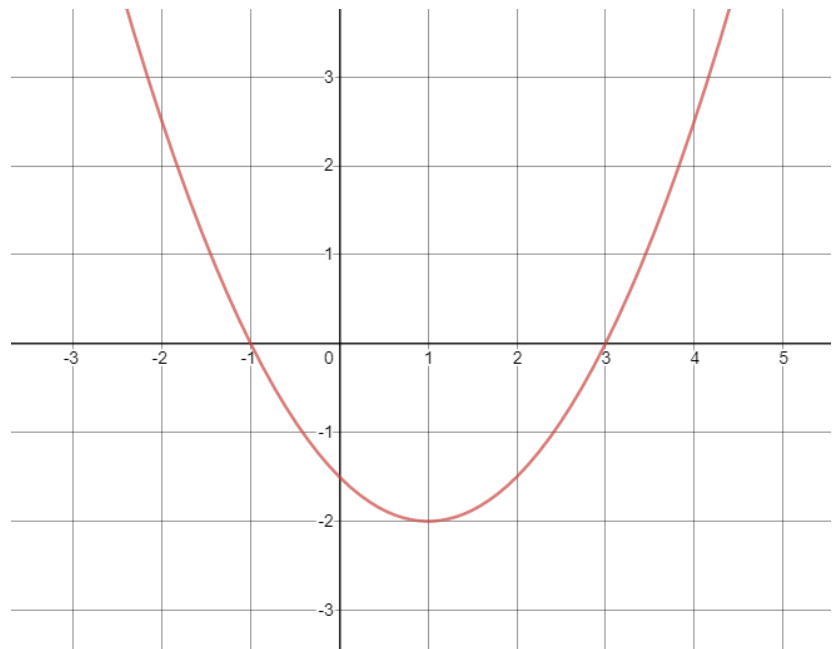
Example 4. Find the equation of the following quadratic relation given graphically.