

Standard form of a quadratic

$$y = ax^2 + bx + c$$

$$y > ax^2 + bx + c$$

$$y < ax^2 + bx + c$$

$$y \geq ax^2 + bx + c$$

$$y \leq ax^2 + bx + c$$

Quadratic Inequality

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

$$y \leq a(x - p)(x - q)$$

Rules for graphing quadratic inequalities...

Graph the boundary parabola $y = ax^2 + bx + c$

Solid line or dotted line

$y < \text{or } y > \Rightarrow$ dotted line

$y \leq \text{or } y \geq \Rightarrow$ solid line

Shade above or below parabola

$y > \text{or } y \geq \Rightarrow$ shade above parabola

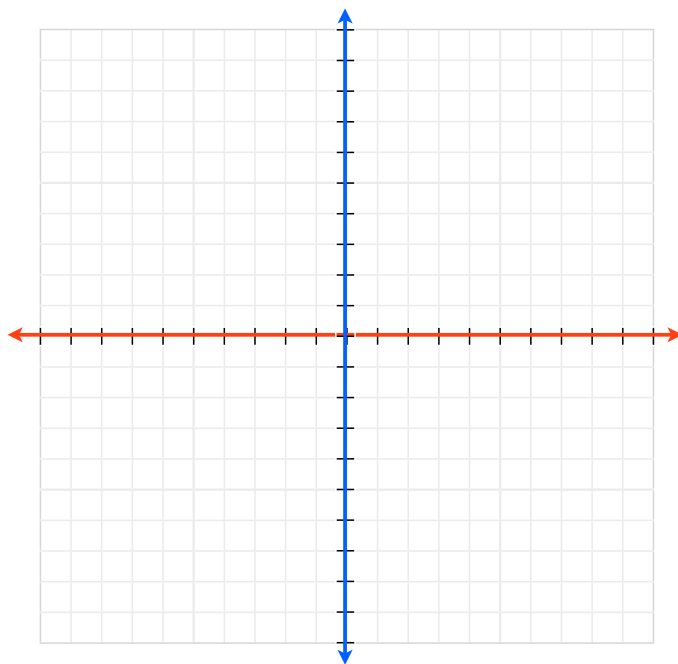
$y < \text{or } y \leq \Rightarrow$ shade below parabola

The shaded region represents all (x, y) coordinates that will make the inequality a true statement.

Graph the following quadratic inequalities

Solid or Dotted Above or Below

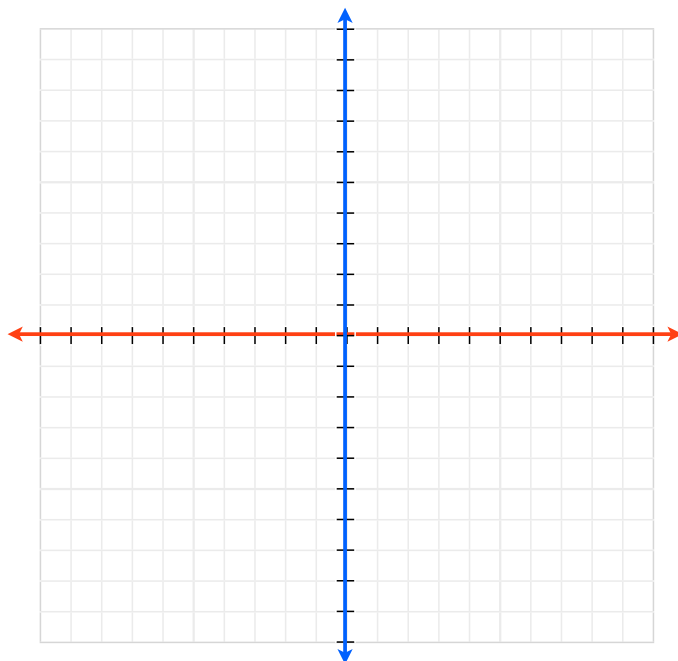
$$y > x^2 - 4x + 1$$



Graph the following quadratic inequalities

Solid or Dotted Above or Below

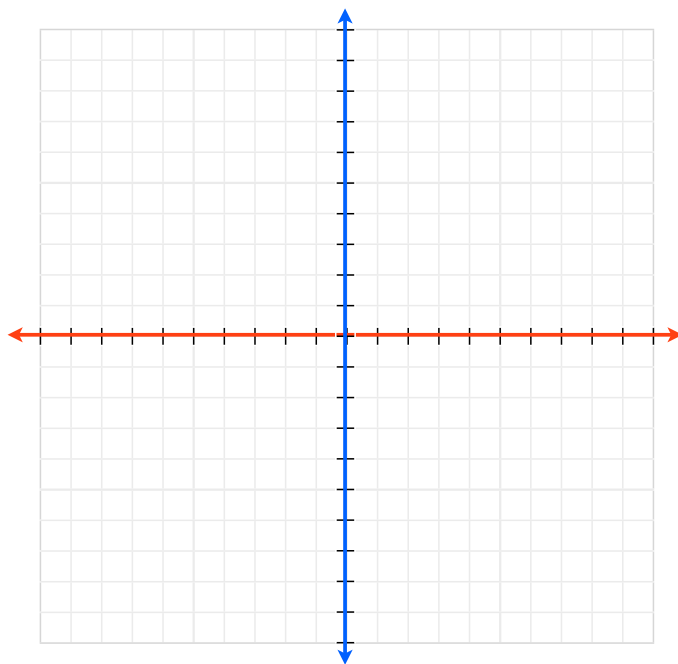
$$y \leq -2x^2 - 8x - 6$$



Graph the following quadratic inequalities

Solid or Dotted Above or Below

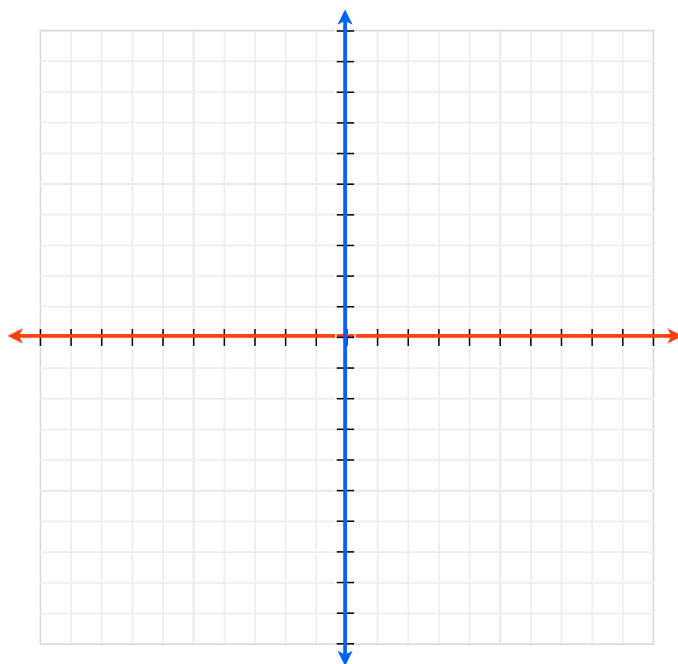
$$y < x^2 + 2x - 4$$



Graph the following quadratic inequalities

Solid or Dotted Above or Below

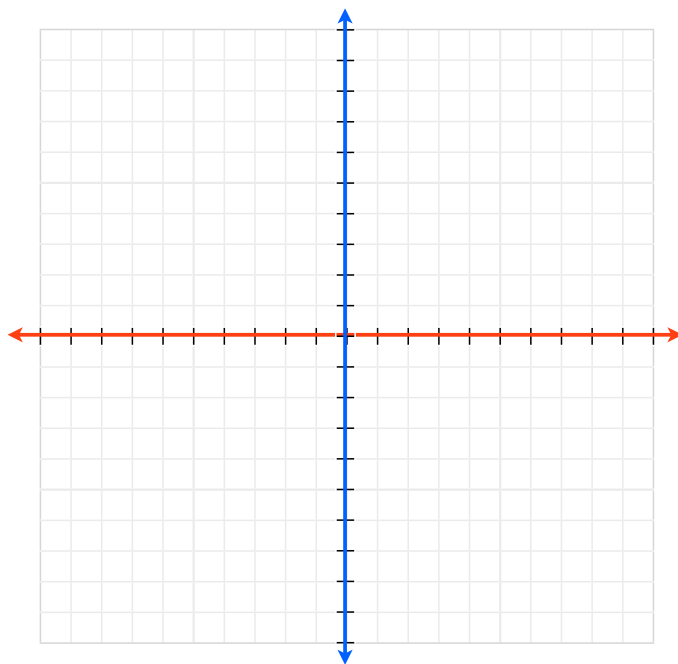
$$y \geq -(x - 4)^2 + 1$$



Graph the following quadratic inequalities

Solid or Dotted Above or Below

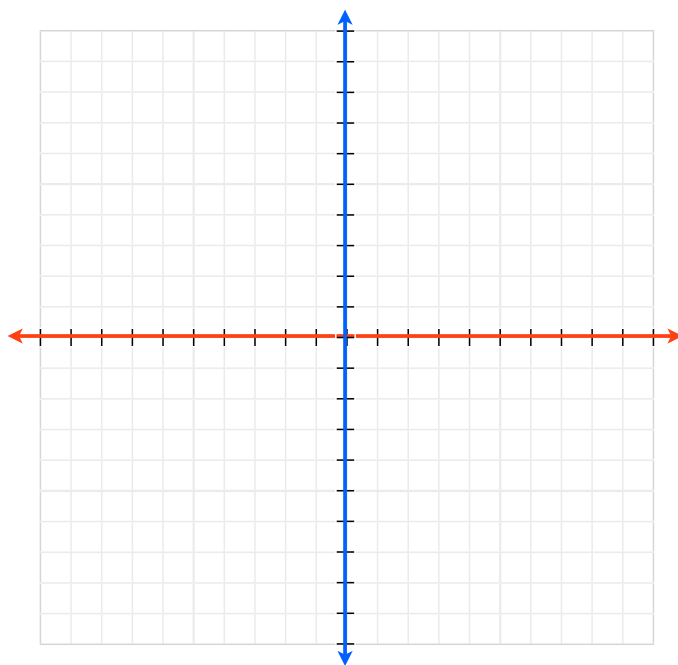
$$y > 2(x + 4)^2 - 5$$



Graph the following quadratic inequalities

Solid or Dotted Above or Below

$$y < (x - 4)(x + 2)$$



Rules for graphing quadratic inequalities...

$$y > ax^2 + bx + c \quad y < ax^2 + bx + c$$

$$y \geq ax^2 + bx + c \quad y \leq ax^2 + bx + c$$

Graph the boundary parabola $y = ax^2 + bx + c$

Solid line or dotted line

$y < \text{or } y > \Rightarrow$ dotted line

$y \leq \text{or } y \geq \Rightarrow$ solid line

Shade above or below parabola

$y > \text{or } y \geq \Rightarrow$ shade above parabola

$y < \text{or } y \leq \Rightarrow$ shade below parabola

Vertex Form

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

Intercept Form

$$y \leq a(x - p)(x - q)$$