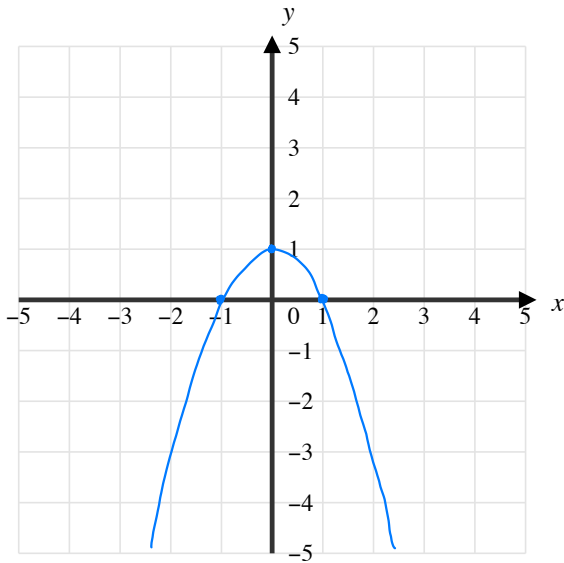


Sketching Quadratic Graphs (A) Find the axis intercepts and vertex.



Sketch the graph of $y = -x^2 + 1$.

Axis intercepts :

$$y = -0^2 + 1 = 1 \quad (0, 1)$$

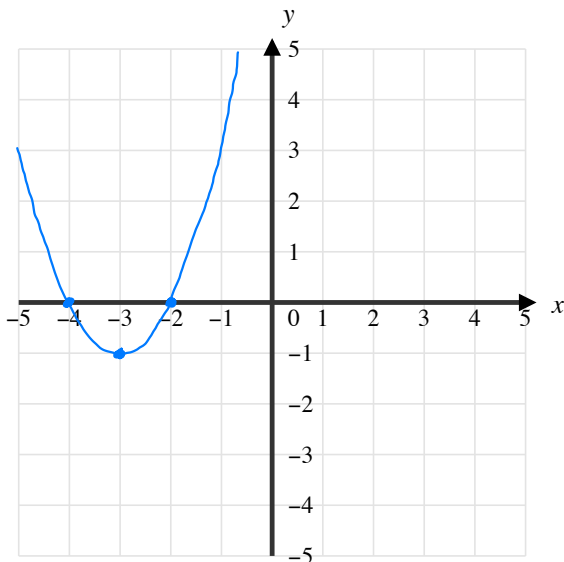
$$0 = -x^2 + 1$$

$$x^2 = 1$$

$$x = \pm 1 \quad (-1, 0) \quad (1, 0)$$

Vertex :

$$(0, 1)$$



Sketch the graph of $y = (x + 3)^2 - 1$.

Axis intercepts :

$$y = (0 + 3)^2 - 1 = 9 - 1 = 8 \quad (0, 8)$$

$$0 = (x + 3)^2 - 1$$

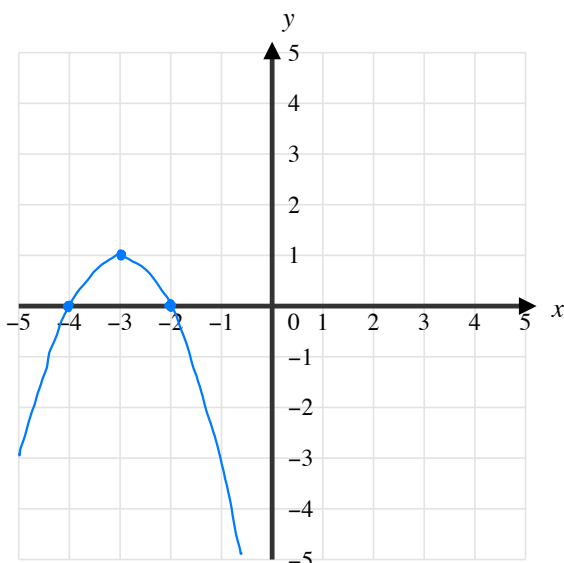
$$(x + 3)^2 = 1$$

$$x + 3 = \pm 1$$

$$x = -3 \pm 1 \quad (-4, 0) \quad (-2, 0)$$

Vertex :

$$(-3, -1)$$



Sketch the graph of $y = -(x + 4)(x + 2)$.

Axis intercepts :

$$y = -(0 + 4)(0 + 2) = -8 \quad (0, -8)$$

$$0 = -(x + 4)(x + 2)$$

$$x = -4, -2 \quad (-4, 0) \quad (-2, 0)$$

Vertex :

$$y = -(-3 + 4)(-3 + 2)$$

$$= -(1)(-1)$$

$$= 1$$

$$(-3, 1)$$