

Graphs of quadratic functions: axis of symmetry and vertex in factored form

Find the axis of symmetry and the vertex:

$$y = -2(x+3)(x-5)$$

x-intercepts: $-3, 5$

axis of symmetry:

average of -3 and 5 :

$$x = \frac{-3 + 5}{2} = \frac{2}{2} = 1$$

$$\boxed{x = 1}$$

vertex: plug in the x-coordinate
to find y-coordinate

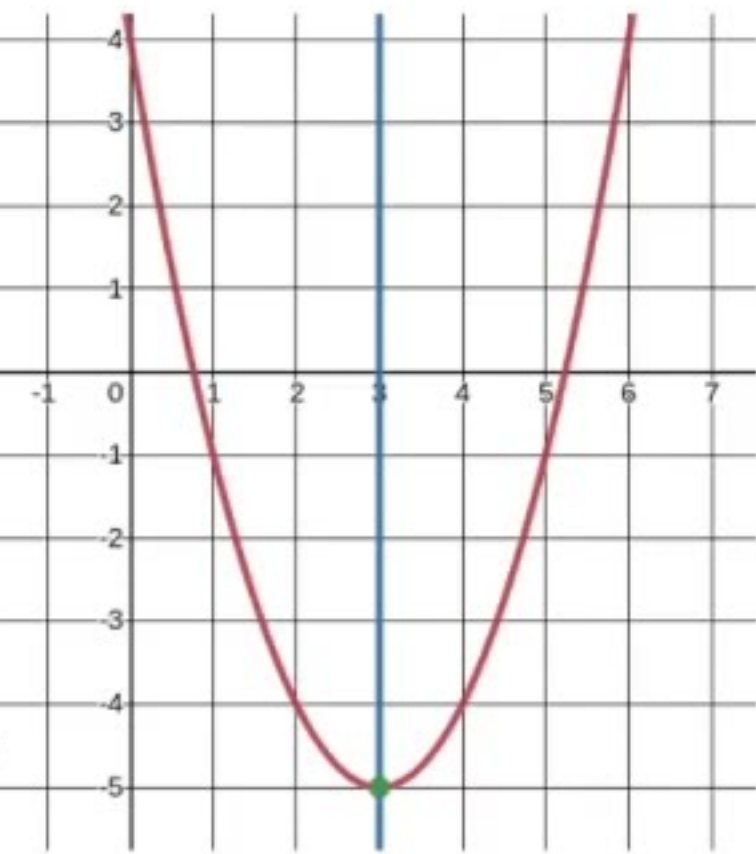
$$\begin{cases} x = 1 \\ y = -2(x+3)(x-5) \end{cases}$$

$$y = -2(1+3)(1-5)$$

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

$$y = 32$$

Vertex: $(1, 32)$



Axis of symmetry:
take the average of
the x-intercepts