c Functions

Graphing Quadratic Functions In Intercept Form

Intercept Form

$f(x) = a(x - b)(x - c)$

Example

$f(x) = \frac{1}{3}(x - 2)(x + 4)$

Your Turn

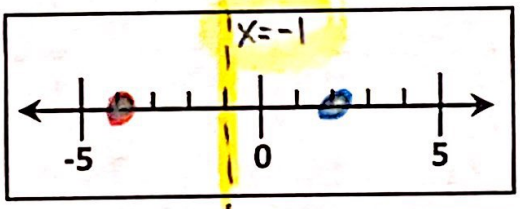
$f(x) = -2(x - 3)(x + 1)$

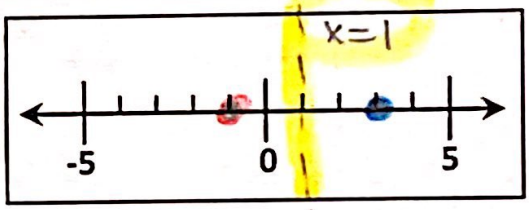
Find and plot the function's zeros

Example: $x - 2 = 0$ (+2 +2) $x = 2$; $x + 4 = 0$ (−4 −4) $x = -4$

Your Turn: $x - 3 = 0$ (+3 +3) $x = 3$; $x + 1 = 0$ (−1 −1) $x = -1$

Find and sketch axis of symmetry (exact middle of zeros)





Substitute axis of symmetry for x to find the y value of the vertex.

$x = -1$

$f(-1) = \frac{1}{3}(-1-2)(-1+4)$

$= \frac{1}{3}(-3)(3)$

$= -3$

$(-1, -3)$

$x = 1$

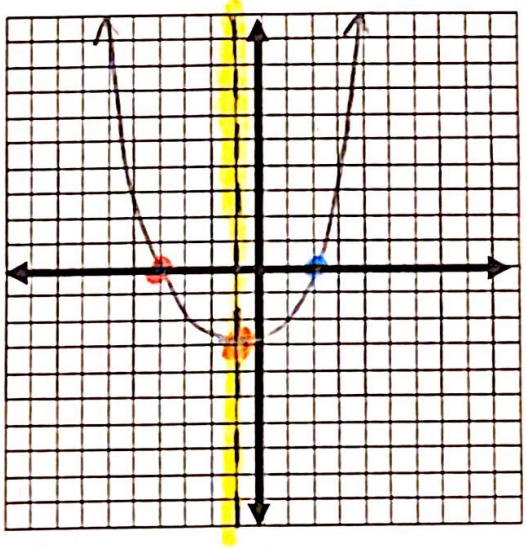
$f(1) = -2(1-3)(1+1)$

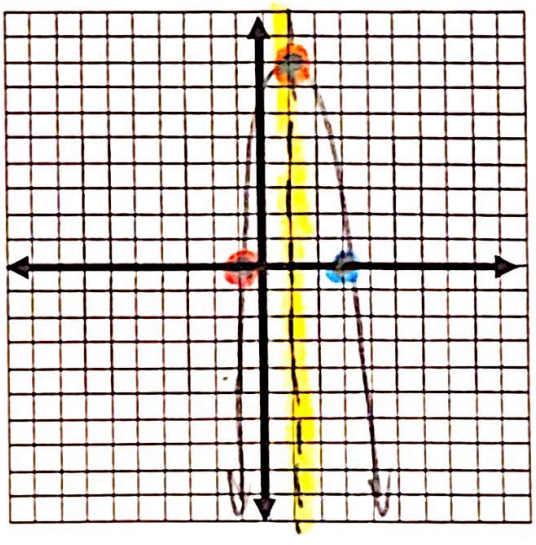
$= -2(-2)(2)$

$= 8$

$(1, 8)$

Connect the points with a smooth curve.





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