

Graphing Quadratic Functions in Factored Form

For each function:

- Identify the zeros.
- Calculate the axis of symmetry using the midpoint of the zeros.
- Substitute the axis-of-symmetry value to determine the vertex.
- Plot the intercepts, axis of symmetry, and vertex, then sketch the parabola.
- State the opening direction, maximum or minimum, domain, and range.

MILD reflections, and location

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

MEDIUM vertices and less obvious zeros

- $y = 2(x + 2)(x - 3)$
- $y = -3(x - 1)(x - 4)$
- $y = 2(x + 5)(x + 2)$
- $y = \left(x + \frac{1}{2}\right)\left(x - \frac{5}{2}\right)$
- $y = -2\left(x - \frac{1}{2}\right)\left(x - \frac{7}{2}\right)$
- $y = (2x - 1)(x + 3)$

SPICY fractions, and graph scales

- $y = \frac{1}{4}(x + 6)(x - 10)$
- $y = -(2x - 3)(x + 2)$
- $y = \frac{1}{2}(2x + 1)(x - 4)$
- $y = -\frac{3}{2}\left(x + \frac{3}{4}\right)\left(x - \frac{5}{4}\right)$
- $y = \frac{2}{3}(3x - 2)(x + 4)$
- $y = -\frac{1}{2}(3x + 1)(2x - 5)$
- $y = -2(x - 3)(x - 3)$

Extra Spicy

- $y = -\frac{1}{2}(2x + 3)(x - 5)$
- $y = \frac{3}{2}(x + 4)(2x - 1)$
- $y = -\frac{2}{3}(3x - 1)(x + 2)$
- $y = \frac{1}{4}(4x + 1)(2x - 5)$