

Graphing Quadratic Equations in Intercept Form

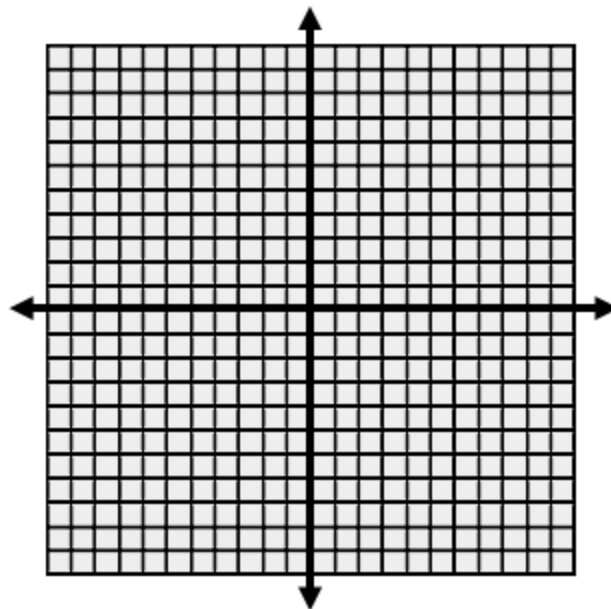
- Another way to graph quadratics!!
- **Intercept form** of a quadratic is its factored form
 - Example: Intercept form of $f(x) = x^2 - 10x + 21$ is $f(x) = (x - 7)(x - 3)$

General Rules for Graphing Quadratics of the Form $f(x) = a(x - p)(x - q)$

- 1) Identify the x-intercepts and plot them
 - x-intercepts for $f(x) = a(x - p)(x - q)$ are $(p, 0)$ and $(q, 0)$
- 2) Find the vertex and axis of symmetry
 - The x-coordinate of the vertex is $x = \frac{p+q}{2}$
(think about it – it's located halfway between the zeros)
 - Plug in the x-coordinate of the vertex to find its y-coordinate; plot point
 - Axis of symmetry is $x = \frac{p+q}{2}$
- 3) Find the y-intercept; reflect over axis of symmetry
 - Calculate $f(0)$ to find the y-intercept
- 4) Find one or two other points if needed, reflecting over axis of symmetry
- 5) Sketch curve

Example: Graph $f(x) = (x - 7)(x - 3)$

- 1) Identify the x-intercepts and plot them
 - x-intercepts are $(7, 0)$ and $(3, 0)$
- 2) Find the vertex and axis of symmetry
 - $x = \frac{p+q}{2} = 5$; $f(5) = -4$
 - Axis of symmetry is $x = 5$
- 3) Find the y-intercept; reflect over axis of symmetry
 - y-int = $f(0) = 21$
- 4) Find one or two other points if needed, reflecting over axis of symmetry
- 5) Sketch curve



Alg 2 WS Quadratic Intercept Graphing
Sketch the parabolas using the intercepts method.

Mrs. Grieser

a) $f(x) = (x + 2)(x - 4)$

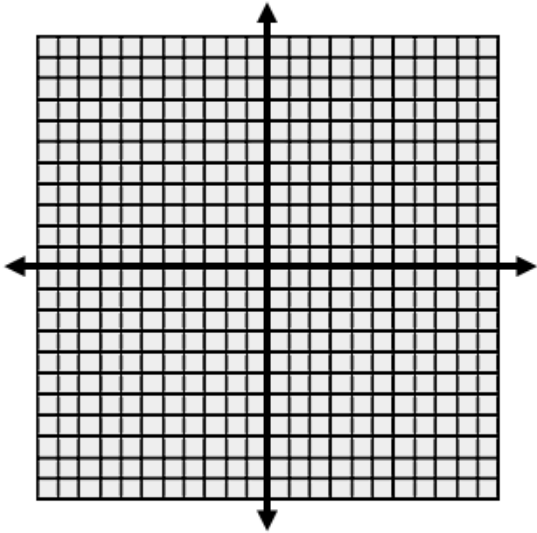
x-intercepts: _____

vertex: _____

axis of symmetry: _____

y-intercept: _____

other points: _____



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

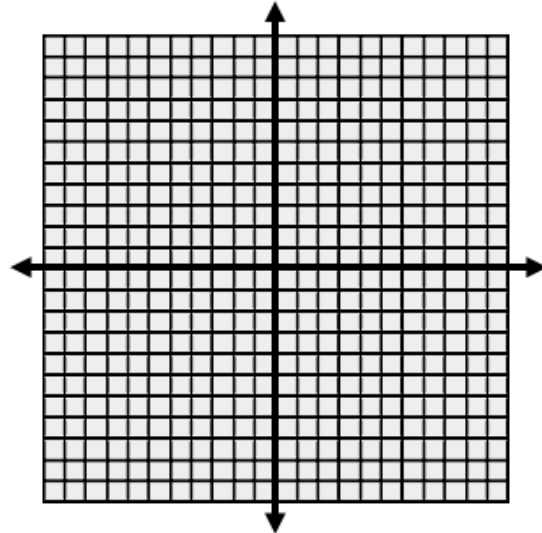
x-intercepts: _____

vertex: _____

axis of symmetry: _____

y-intercept: _____

other points: _____



c) $f(x) = -(x - 2)(x + 4)$

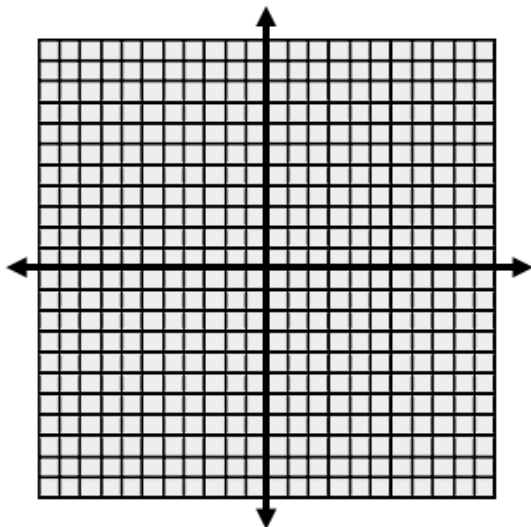
x-intercepts: _____

vertex: _____

axis of symmetry: _____

y-intercept: _____

other points: _____



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

x-intercepts: _____

vertex: _____

axis of symmetry: _____

y-intercept: _____

other points: _____

