

Graphing Quadratic Functions

	Standard Form	Vertex Form	Intercept Form
What does it look like?	$y = ax^2 + bx + c$ • No parentheses • If term is missing: coefficient = 0 • $a > 0$ \uparrow Min. $a < 0$ \downarrow Max. $x = \frac{-b}{2a}$ • Must include "x = " bc it is the equation of a vertical line	$y = a(x-h)^2 + k$ • one parentheses raised to second power $x = h$ • Be Careful w/ sign of h "opposite" of what you see in the equation.	$y = a(x-p)(x-q)$ • Multiply 3 values • No exponents axis of symmetry is halfway between x-intercepts $x = \frac{p+q}{2}$
Max/Min?	$a > 0$ \oplus \uparrow Min. $a < 0$ \ominus \downarrow Max.	→ same	→ same
Axis of Symmetry	$x = \frac{-b}{2a}$ • Must include "x = " bc it is the equation of a vertical line	$x = h$ • Be Careful w/ sign of h "opposite" of what you see in the equation.	$x = \frac{p+q}{2}$ axis of symmetry is halfway between x-intercepts
Vertex	$(-\frac{b}{2a}, \text{---})$ plug in $-\frac{b}{2a}$ for x to the original function to solve for the y-coordinate of vertex	(h, k) same sign	$(\frac{p+q}{2}, \text{---})$ • plug in $\frac{p+q}{2}$ for x in the original function & solve for y-coordinate of vertex • p & q are the x-coordinates of the x-intercepts $y = 0$
x-Intercepts	• Where graph crosses x-axis • Set y/function = 0 to solve for x (Next unit) Use T/H Chart • Choose x values to the right/left of axis of symmetry ↳ Reflect the points	→ same	• Plot x-intercepts (2) vertex & graph NO H chart needed

To graph