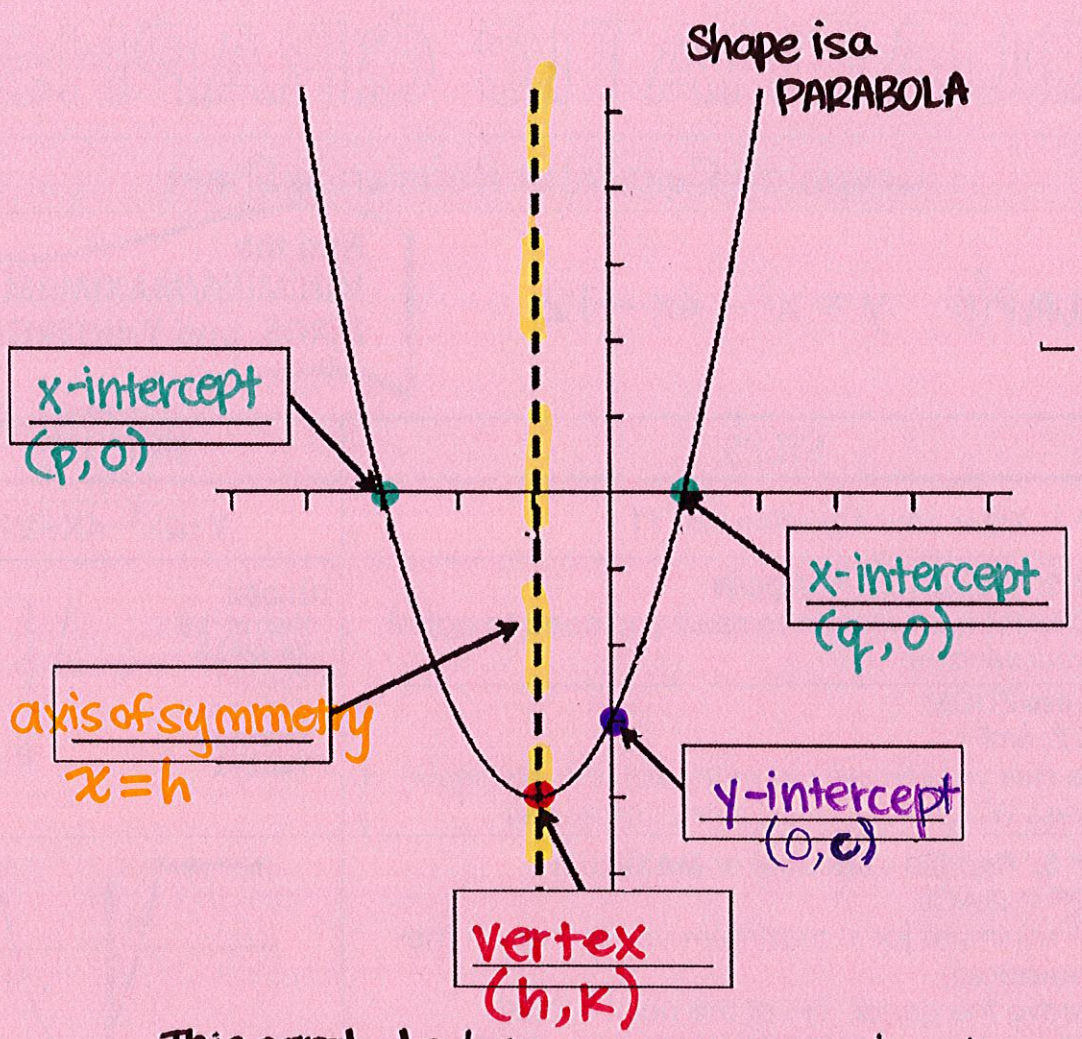
Unit 4 Quadratic Graphs Graphic Organizer



This parabola has a MINIMUM since it opens up.

Forms of a Quadratic:

Standard Form	$y = ax^2 + bx + c$	y-intercept: (0, c)
Vertex Form	$y = a(x - h)^2 + k$	vertex: (h, k) axis of symmetry: x = h
Factored Form more appropriately named Intercept form	$y = a(x - p)(x - q)$	x-intercepts: (p, 0) and (q, 0)

Notes:

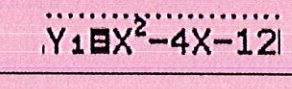
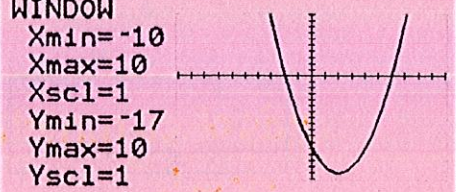
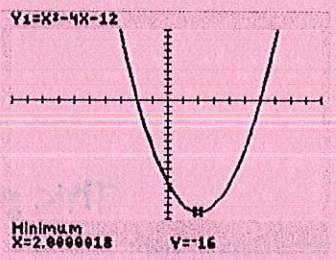
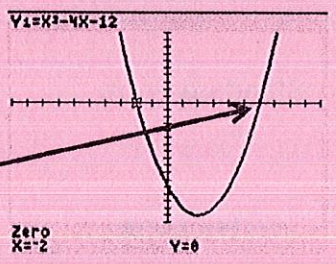
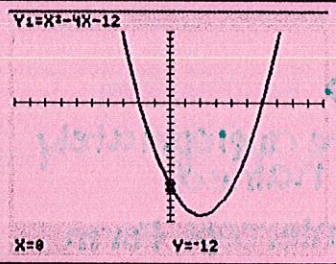
- a is the same in all 3 forms.
- a is also the vertical distance to the parabola one unit to the right of the vertex.

QUADRATIC GRAPHS

Graphing Calculator Reference Sheet

Example: $y = x^2 - 4x - 12$

Find the MINIMUM/MAXIMUM, ZEROS, and Y-INTERCEPT

STEPS	PICTURE
❑ **STEP 1: Enter your equation into Y1 =**	
❑ **STEP 2: Adjust your WINDOW** • GRAPH the function to see if you need to adjust your window - Press ZOOM - 0: ZoomFit - Be sure you can see the vertex and both intercepts. - Press WINDOW to adjust again if necessary	
❑ **STEP 3: Find the MINIMUM or MAXIMUM** • 2ND – TRACE • 3: minimum (or 4: maximum depending on the parabola) • Move the cursor LEFT of the point – ENTER • Mover the cursor RIGHT of the point – ENTER • Guess? - ENTER	
❑ **STEP 4: Find the ZERO(S)** - Press Y = , set Y2 = 0 - Press 2nd - TRACE - 5: intersect - Move cursor to the first zero - ENTER (3 times) • Repeat to find the other ZERO	
❑ **STEP 5: Find the Y-INTERCEPT** • 2ND – TRACE • 1: value • X = 0 – ENTER	

MIN: (2, -16)
ZEROS: (-2, 0) and (6, 0)
Y-INT: (0, -12)