

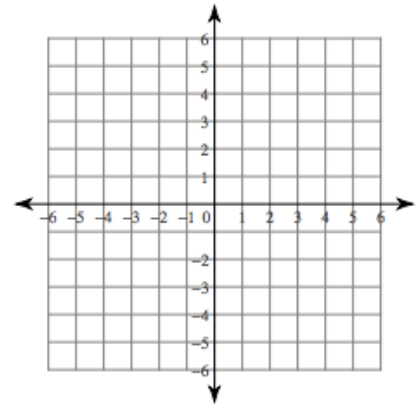
Quadratic Functions - Standard Form $f(x) = ax^2 + bx + c$

Steps to Graph

- 1) Find the vertex and the axis of symmetry using the formula:
- 2) Find 2 points on one "arm" of the parabola.
- 3) Use the axis of symmetry to reflect the points and make the parabola.

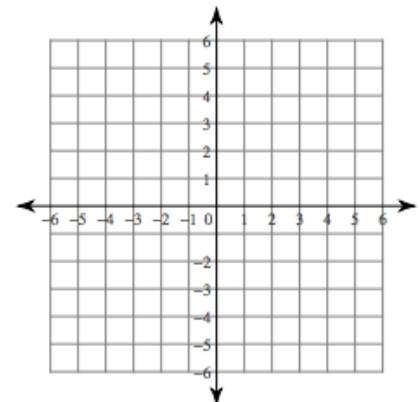
Ex. 1 $f(x) = x^2 - 6x + 4$

x		y	$f(x) = y$	(x, y)



You Try 2 $f(x) = -x^2 + 4x - 2$

x		y	$f(x) = y$	(x, y)



Can you figure out the vertex form of the function from the graph of You Try 2?

What is the a value?

What is the horizontal transformation?

What is the vertical transformation?

What is the vertex form of the quadratic function?

What is the vertex form of the quadratic function?

Ex. 3 $f(x) = 2x^2 - 8x + 7$

You Try 4 $y = -3x^2 + 18x - 4$

Multiple Choice Practice - SHOW WORK/JUSTIFY YOUR REASONING.

1) What is the vertex of the graph of $y = -3x^2 + 12x + 1$?

- a. (13,2) b. (2,13) c. (0,1) d. (1,0)

2) What direction will the graph of $y = -3x^2 + 12x + 1$ open? What type of vertex will it have?

- a. upwards, minimum c. downwards, minimum
b. upwards, maximum d. downwards, maximum

3) Match each function with the graph. EXPLAIN WHY YOU CHOSE EACH MATCH.

I. $y = -x^2 - 6x$

II. $y = -x^2 + 6$

III. $y = x^2 - 6$

IV. $y = x^2 + 6x$

