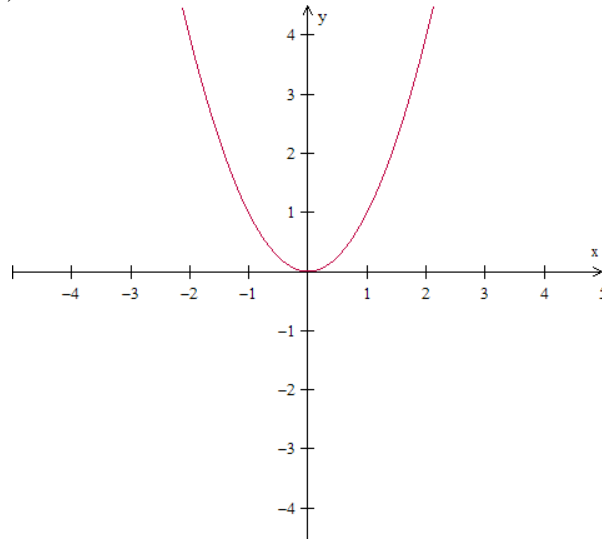


Algebra 2
Graphing Quadratic Equations in Standard Form

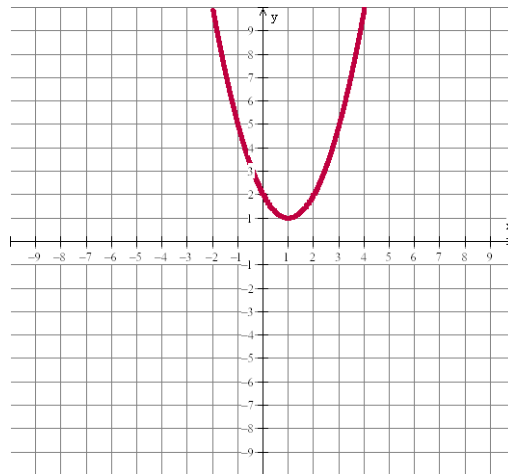
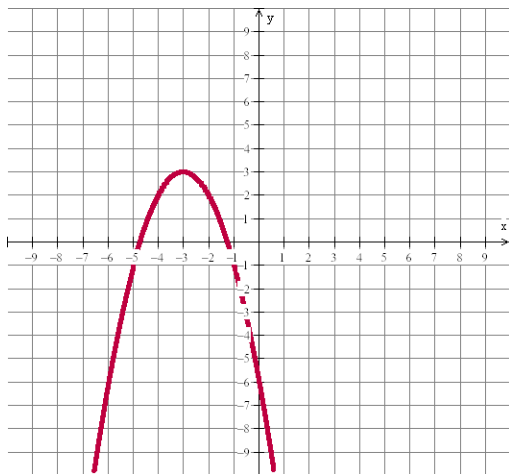


Today I will...	I'll know I've got it when...	Essential Question...

The parent function is $f(x) = x^2$.



Example 1: For each parabola below, label the vertex, axis of symmetry, x-intercept(s), and y-intercept(s).



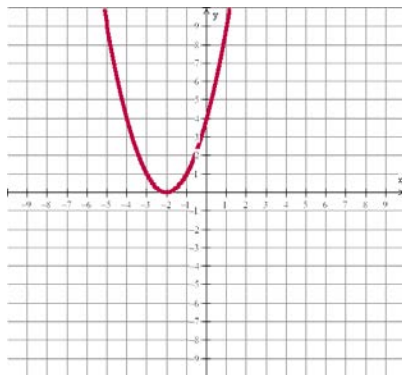
Algebra 2
Graphing Quadratic Equations in Standard Form

Standard Form

$$f(x) = x^2 + 4x + 4$$

Vertex Form

$$f(x) = (x + 2)^2$$

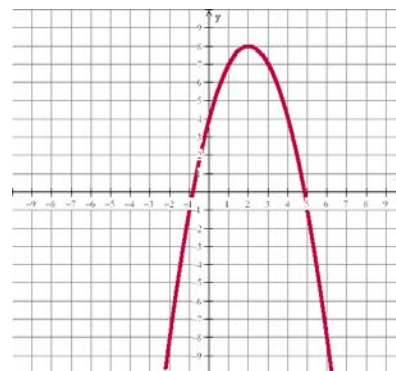


Standard Form

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

Vertex Form

$$f(x) = -(x - 2)^2 + 8$$



Example 2: Determine whether the quadratic function is in standard or vertex form. Then determine whether the parabola will open up or down. Finally, identify the vertex, the y-intercept and the axis of symmetry.

A. $f(x) = -x^2 + 4x - 7$

B. $f(x) = 2(x + 1)^2 + 3$

Standard or Vertex Form?

Standard or Vertex Form?

Opens up or down?

Opens up or down?

Vertex:

Vertex:

y-intercept:

y-intercept:

Axis of Symmetry:

Axis of Symmetry:

Algebra 2
Graphing Quadratic Equations in Standard Form



Example 3: Graph $f(x) = x^2 - 2x - 2$.

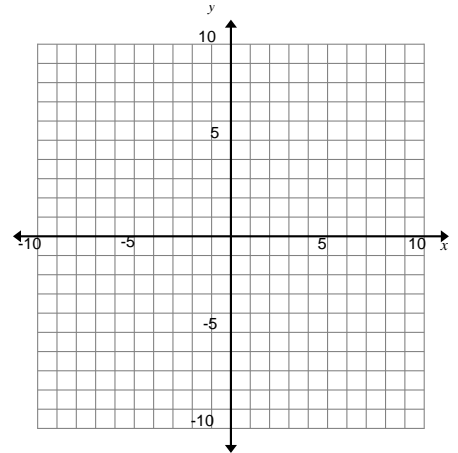
Step 1: Determine whether the parabola will open up or down.

Step 2: Find the vertex. Then graph it.

Step 3: Draw the axis of symmetry going through the vertex.

Step 4: Find the y-intercept. Graph the y-intercept, then use the axis of symmetry to find the reflections of this point

Step 5: Pick one more x-value and calculate its y-value. Then graph this point and use the axis of symmetry to find its reflection.



x	$f(x)$	Ordered Pair $(x, f(x))$	Rule/Work

Step 5: Draw the parabola. Check to see if the parabola opens the way you determined in Step 1.

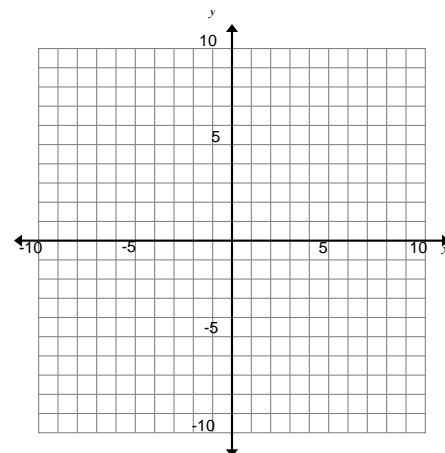
Algebra 2
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Example 4: Graph $f(x) = -x^2 + 6x - 5$.

Opens up or down?

Vertex:

y-intercept:



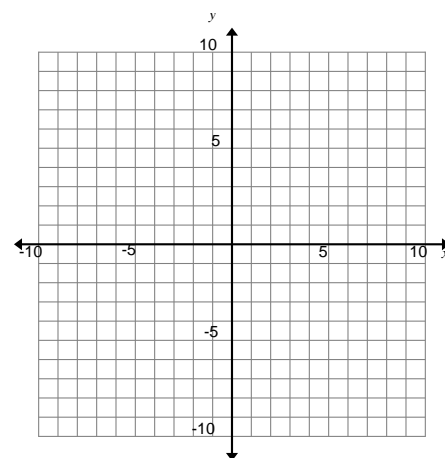
x	$f(x)$	Ordered Pair $(x, f(x))$	Rule/Work

Example 5: Graph $f(x) = 2x^2 + x - 3$.

Opens up or down?

Vertex:

y-intercept:



x	$f(x)$	Ordered Pair $(x, f(x))$	Rule/Work

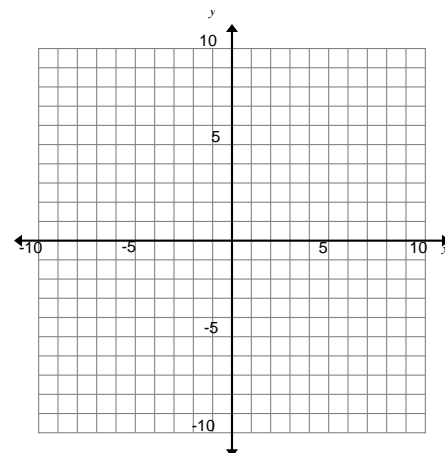
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Example 6: Graph $f(x) = 3x^2 - 4x$.

Opens up or down?

Vertex:

y-intercept:



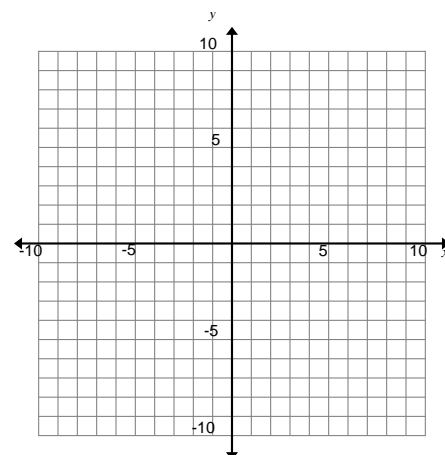
x	$f(x)$	Ordered Pair ($x, f(x)$)	Rule/Work

Example 7: Graph $f(x) = -x^2 + 2$.

Opens up or down?

Vertex:

y-intercept:



x	$f(x)$	Ordered Pair ($x, f(x)$)	Rule/Work