Name _____ Class _____ Date _____

Reteaching 9-2

Quadratic Functions

OBJECTIVE: Graphing quadratic functions of the form $y = ax^2 + bx + c$

MATERIALS: Graph paper

To graph the quadratic function $y = ax^2 + bx + c$:

- Find the equation of the axis of symmetry by substituting a and b values into the equation $x = -\frac{b}{2a}$. This is also the x-coordinate of the vertex.
- Find the y-coordinate of the vertex by substituting the x-value into the quadratic equation and solving for y.
- For graphs of inequalities, the curve is dashed for < or > and solid for ≤ or ≥.

Example

Sketch the graph of the equation $f(x) = -3 - 2x + x^2$.

Standard form: $y = x^2 - 2x - 3$

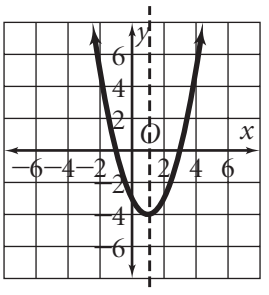
Axis of symmetry: $y = -\frac{b}{2a} = -\frac{(-2)}{2(1)} = \frac{2}{2(1)} = 1$

Vertex: Substitute $x = 1$ into the equation to get y.

$y = (1)^2 - 2(1) - 3 = -4$
vertex: $(1, -4)$

Table of Values		
x	$x^2 - 2x - 3$	y
-2	$4 + 4 - 3$	5
0	$0 - 0 - 3$	-3
2	$4 - 4 - 3$	-3

← y-intercept



Exercises

Find the following to graph $y + x^2 = 16 + 4x$.

1. Standard form:
2. Axis of symmetry:
3. Vertex:
4. Table of values
5. Graph

Graph each function.

6. $y + x^2 = -1 + 2x$
7. $f(x) = -4x + 3 + x^2$

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.