Name _____ Class _____ Date _____

Reteaching 9-1

Exploring Quadratic Graphs

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

MATERIALS: Graph paper

$y = ax^2$	Comparison	$y = ax^2 + c$
It forms a parabola.	Same	It forms a parabola.
It opens up if $a > 0$.	Same	It opens up if $a > 0$.
It opens down if $a < 0$.	Same	It opens down if $a < 0$.
Its line of symmetry is the y-axis.	Same	Its line of symmetry is the y-axis.
The vertex is the origin	Different	The vertex is shifted up c units from the origin if $c > 0$, down c units if $c < 0$.

Example

Sketch the graph of the equation $y = -x^2 + 5$.

Gather some information about the graph by looking closely at the equation.

opens *downward*

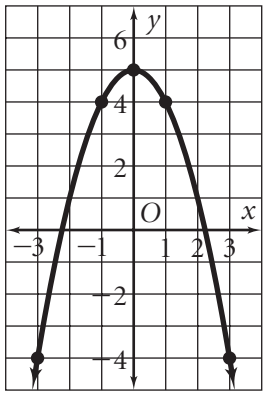
$y = -x^2 + 5$

The vertex is shifted *up* five units from the origin.

Make a table of values

x	y
−3	−4
−1	4
0	5
1	4
3	−4

Graph.



Exercises

Fill in the blanks for each equation. Make a table of values. Then graph each equation.

The parabola opens _____.

The vertex is shifted _____ unit(s) from the origin.

1. $y = x^2$

2. $y = 3x^2 + 1$

3. $y = -4x^2$

4. $y = \frac{1}{2}x^2$

5. $y = -\frac{1}{2}x^2 - 3$

6. $y = x^2 + \frac{1}{2}$

7. $y = 2x^2 - 4$

8. $y = -x^2 - 3$

9. $y = -4x^2 + 7$

10. $y = \frac{1}{4}x^2 - 2$

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