

Name: _____

Date: _____

Notes

Algebra Section 10.1

Pages 628-634

Goal: “You will graph simple quadratic functions”



Vocabulary:

quadratic function: A _____ function that can be written in the _____
_____ $y =$ _____

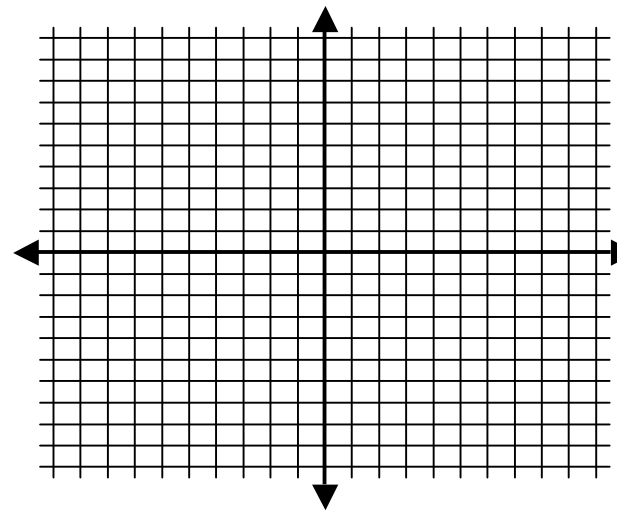
parabola: The _____ - _____ graph that is created from a _____.

vertex: The highest (_____) or lowest (_____) point on a _____.

axis of symmetry: The _____ that passes through the _____ and divides the _____
into two _____ parts.

Ex: Graph $y = x^2$ by making a table:

x	-3	-2	-1	0	1	2	3
y							



$y = x^2$ is called the “Parent quadratic function”
you compare all other quadratic functions to it.

OBSERVATIONS

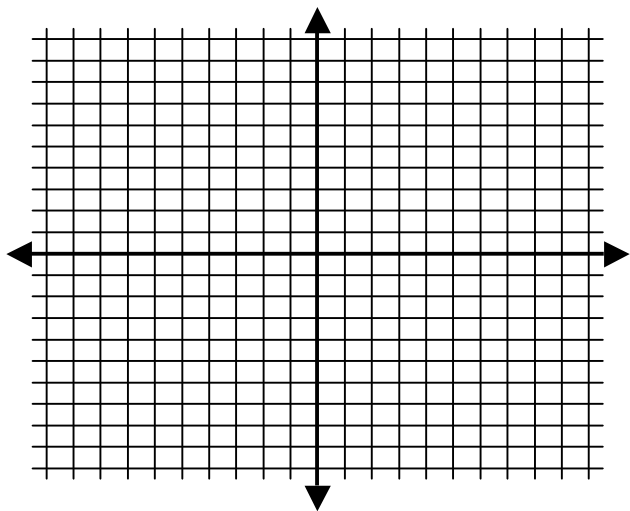
- Graph the following quadratic functions. Graph the odds by making a table and graph the evens by using a graphing calculator and copying it onto the graph provided.
- For each parabola identify the vertex and axis of symmetry.
- Compare each parabola to $y = x^2$ and begin to come up with some observations about characteristics of parabolas as they compare to their quadratic equations. (Ex: Direction it is facing/opening, narrowness/wideness, vertex)

1. $y = 2x^2$

x	-3	-2	-1	0	1	2	3
y							

Vertex: _____

Axis of Symmetry: _____

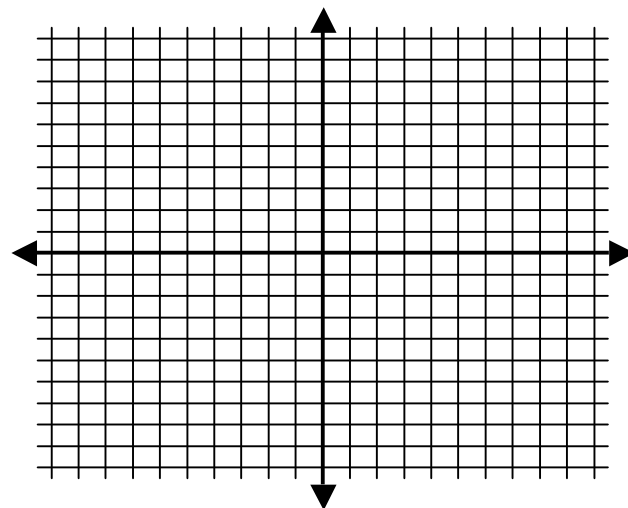


2. $y = 3x^2$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

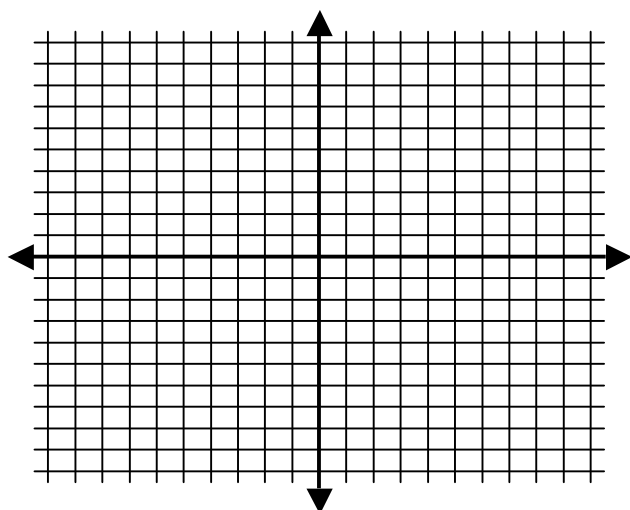


3. $y = -2x^2$

x	-3	-2	-1	0	1	2	3
y							

Vertex: _____

Axis of Symmetry: _____

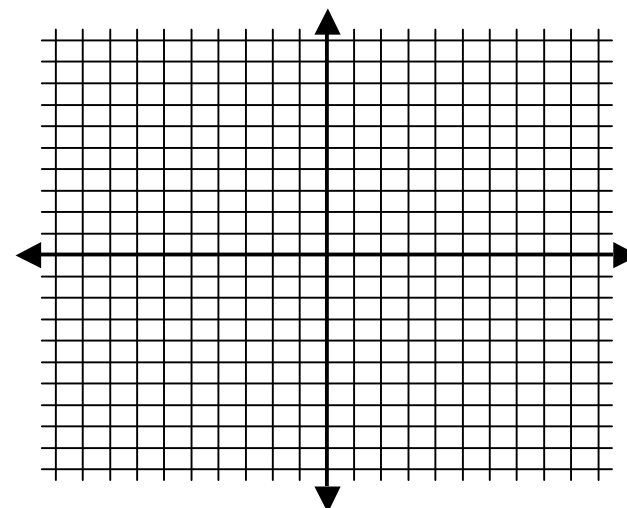


4. $y = -3x^2$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

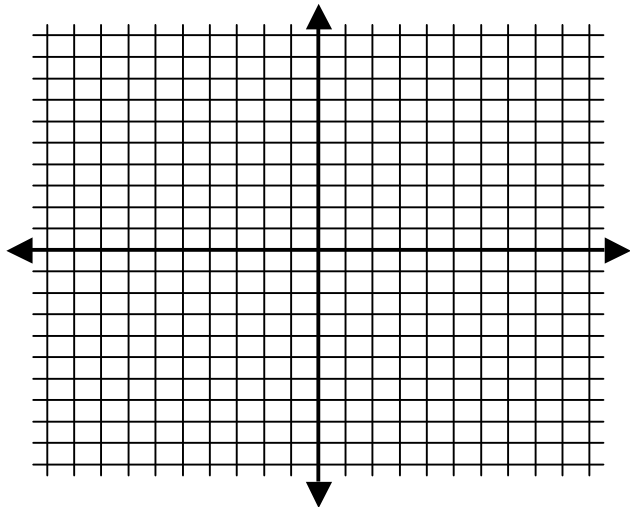


5. $y = \frac{1}{2}x^2$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

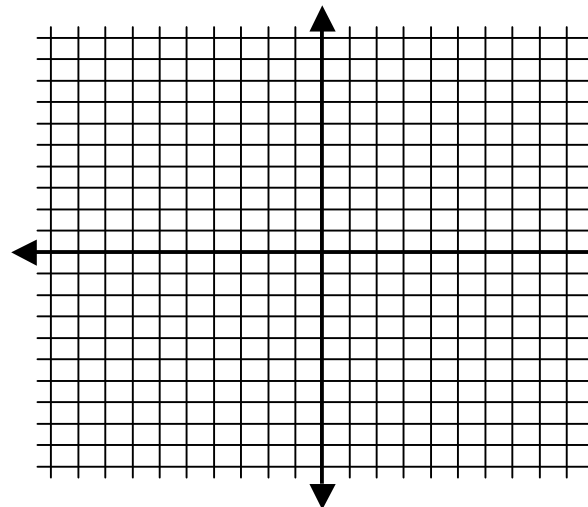


6. $y = \frac{1}{4}x^2$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

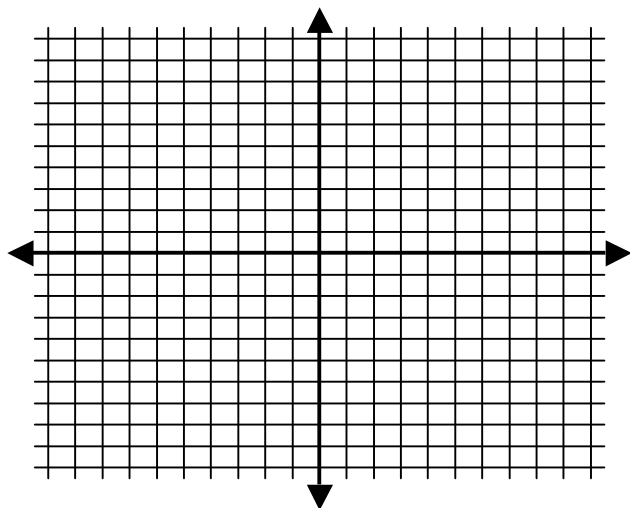


7. $y = 5x^2$

x	-3	-2	-1	0	1	2	3
y							

Vertex: _____

Axis of Symmetry: _____

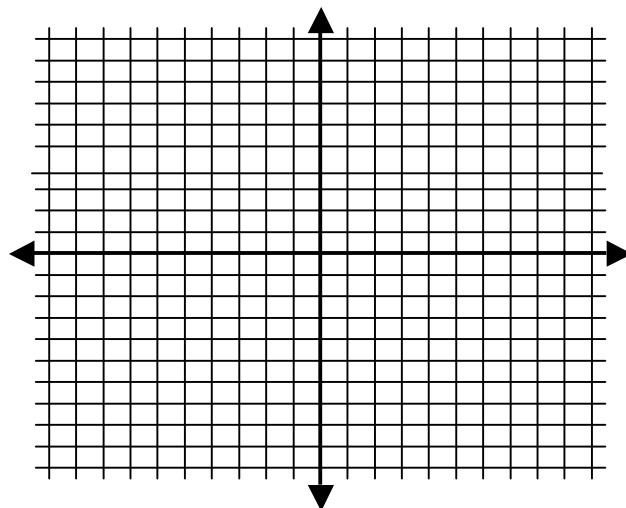


8. $y = -4x^2$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

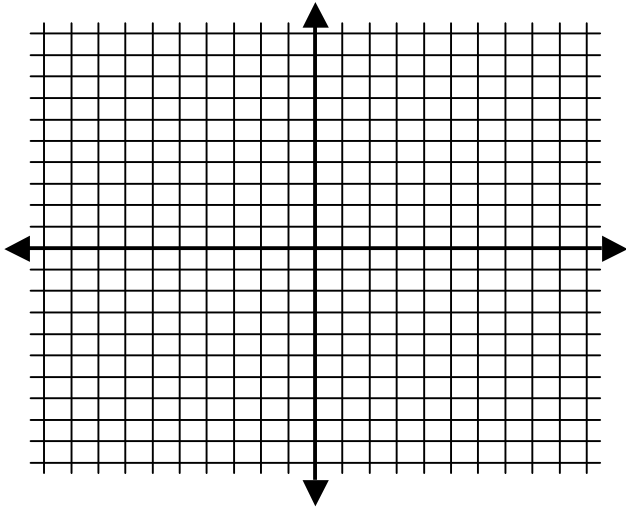


9. $y = x^2 + 5$

x	-3	-2	-1	0	1	2	3
y							

Vertex: _____

Axis of Symmetry: _____

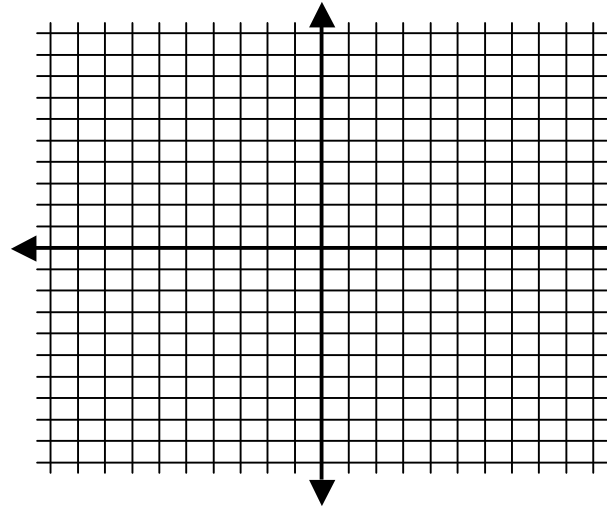


10. $y = x^2 - 1$

x	-6	-4	-2	0	2	4	6
y							

Vertex: _____

Axis of Symmetry: _____

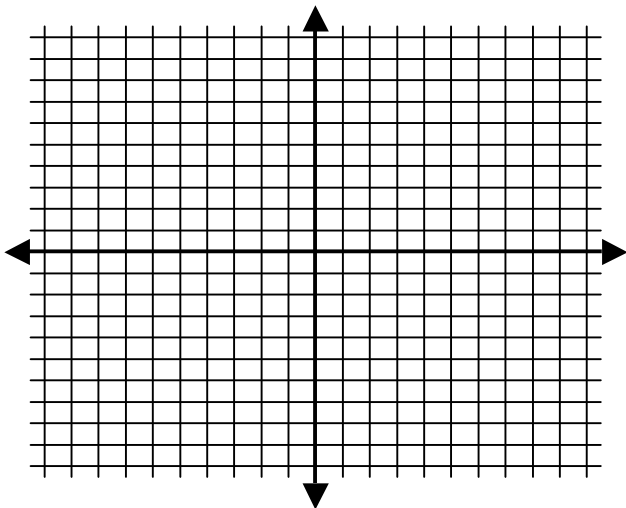


11. $y = x^2 + 4$

x	-3	-2	-1	0	1	2	3
y							

Vertex: _____

Axis of Symmetry: _____

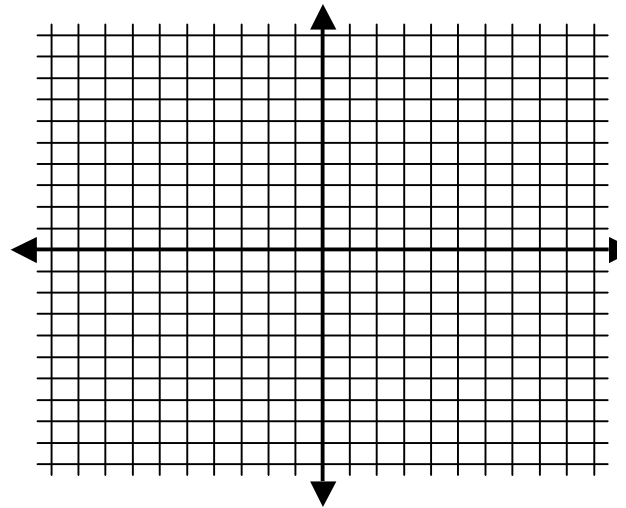


12. $y = x^2 - 2$

x	-6	-4	-2	0	2	4	6
y							

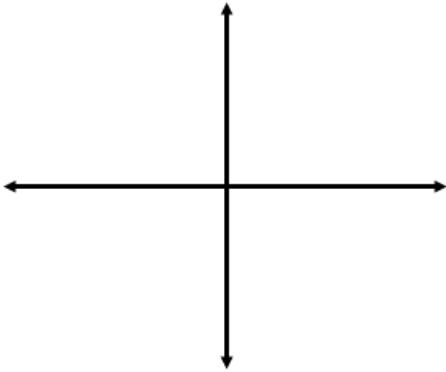
Vertex: _____

Axis of Symmetry: _____

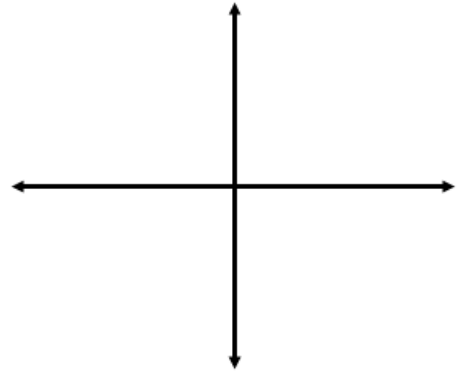


Now use your observations to sketch the graphs of the following quadratic functions:

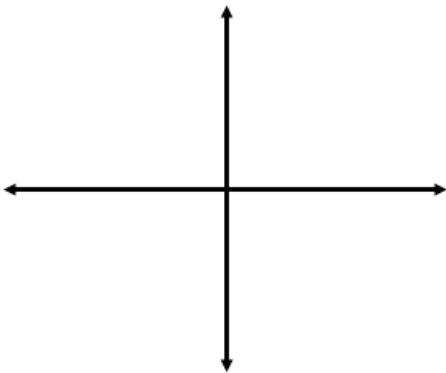
1. $y = \frac{1}{2}x^2 - 4$



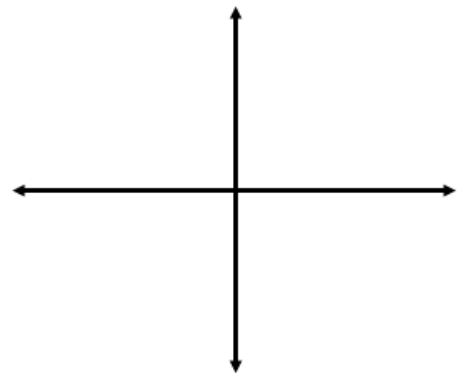
2. $y = -\frac{3}{2}x^2 - 2$



3. $y = 3x^2 - 6$



4. $y = -5x^2 + 1$



****THOUGHTS TO CONSIDER****

- What makes a parabola narrower?
- What makes a parabola wider?
- What makes a parabola open facing upward (U-shaped)?
- What makes a parabola open facing downward (\cap -shaped)?
- What shifts a parabola up on the y-axis?
- What shifts a parabola down on the y-axis?