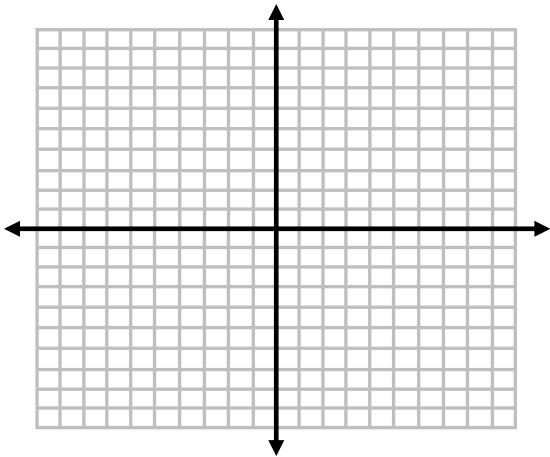


Graph the following equations. Then, identify the characteristics of each function.

1) Given $y = x^2$

A) Graph plot and fill in the table with at least 5 points, including the vertex



x	y
-2	
-1	
0	
1	
2	

B) How it opens: **Up or Down**

C) The Vertex: _____

D) The roots _____

E) Line of Symmetry _____

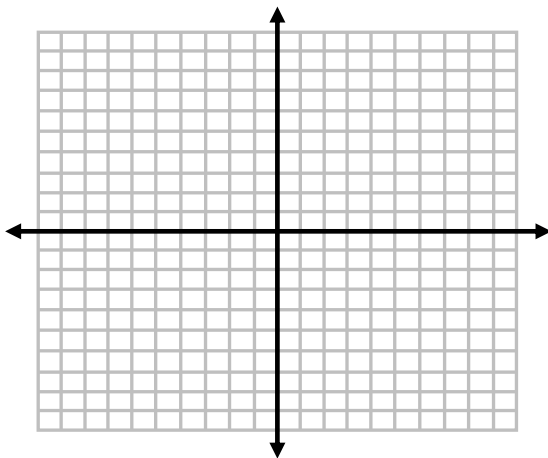
F) Domain _____

G) Range _____

H) Minimum/Maximum Value _____

2) Given $y = -x^2 + 4$

A) Graph plot and fill in the table with at least 5 points, including the vertex



x	y
-2	
-1	
0	
1	
2	

B) How it opens: **Up or Down**

C) The Vertex: _____

D) The roots _____

E) Line of Symmetry _____

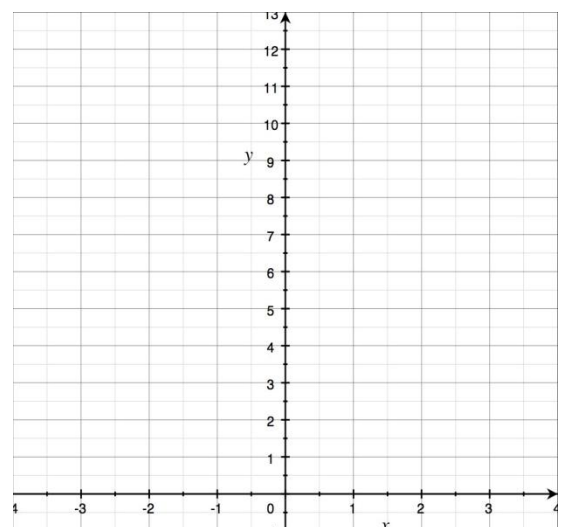
F) Domain _____

G) Range _____

H) Minimum/Maximum Value _____

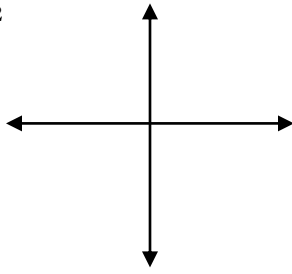
3) Fill in the table for $f(x)$ and $g(x)$. Then, graph each function on the axes.

x	$f(x) = x^2$	$h(x) = 3x^2$	$g(x) = \frac{1}{2}x^2$
-3			
-2			
-1			
0			
1			
2			
3			

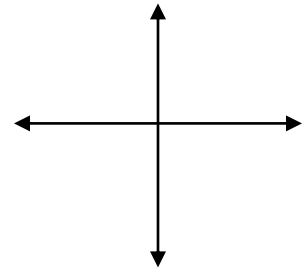


Graph the following quadratic functions in your calculator and sketch each pair.

4) $f(x) = -3x^2$
 $h(x) = 3x^2$



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



What can we generalize?

Write an equation with the information given.

6) Given the function $y = x^2 + 8$, describe the shift in the vertex of the parabola if, in the function, 8 is changed to -5 ?

7) What is the equation of the function that would be shifted 3 units down from the graph of $f(x) = x^2 - 5$?

8) How would the graph of the function $y = x^2 + 11$ be affected if the function were changed to $y = x^2 + 6$?

9) How do the graphs of the functions $f(x) = -3x^2 + 2$ and $g(x) = 3x^2 - 3$ relate to each other?

10) Give an example of a function that represents a parabola that is (a) wider than the function $f(x) = x^2$ and (b) narrower than the function $f(x) = x^2$?

11) Order the functions from narrowest graph to widest graph.

$$f(x) = \frac{2}{3}x^2 - 4$$

$$f(x) = -7x^2 + 2$$

$$f(x) = 3x^2 - 1$$

$$f(x) = -\frac{1}{3}x^2 + 9$$

12) How do the graphs of the functions $f(x) = x^2$ and $g(x) = 5x^2 + 4$ relate to each other.