

PART A - Graphing Parabolas of the Form $y = x^2 + k$

Complete each table of values below and graph the quadratic relationship to the right. Complete the blanks below each graph as well. **Add the graph of $y=x^2$ to each graph as well.**

Equation: $y = x^2 + 2$

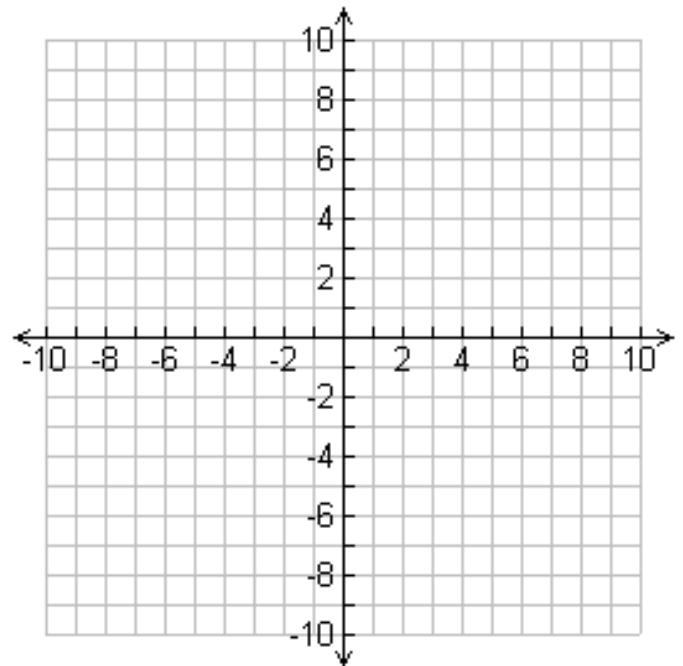
x	y
-3	
-2	
-1	
0	
1	
2	
3	

Vertex:

Zeroes:

Step Pattern:

Direction of Opening:



Equation: $y = x^2 - 7$

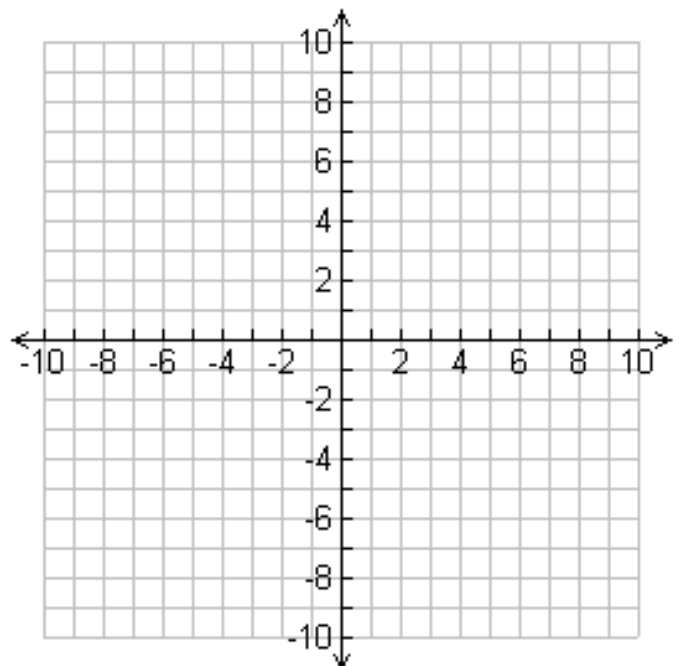
x	y
-3	
-2	
-1	
0	
1	
2	
3	

Vertex:

Zeroes:

Step Pattern:

Direction of Opening:

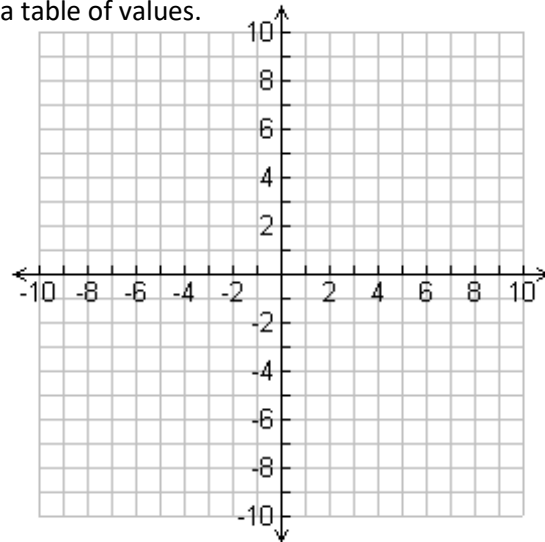


Summary

The graph of $y = x^2 + k$ is the graph of $y = x^2$ shifted _____.

The step pattern will be _____. The vertex will be at _____.

Sketch the graph of $y = x^2 - 3$ below without making a table of values.



PART B - Graphing Parabolas of the Form $y = ax^2$

Complete each table of values below and graph the quadratic relationship to the right. Complete the blanks below each graph as well. **Add the graph of $y=x^2$ to each graph as well.**

Equation: $y = 2x^2$

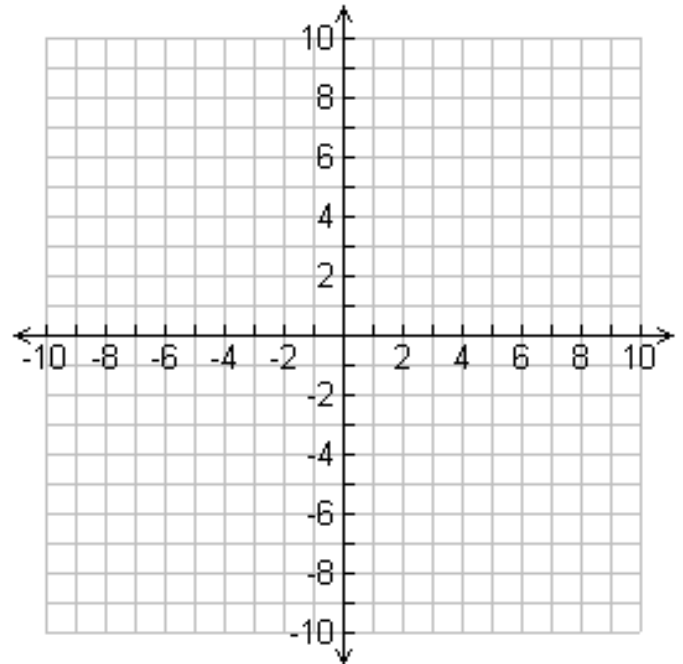
x	y
-3	
-2	
-1	
0	
1	
2	
3	

Vertex:

Zeroes:

Step Pattern:

Direction of Opening:



Equation: $y = -x^2$

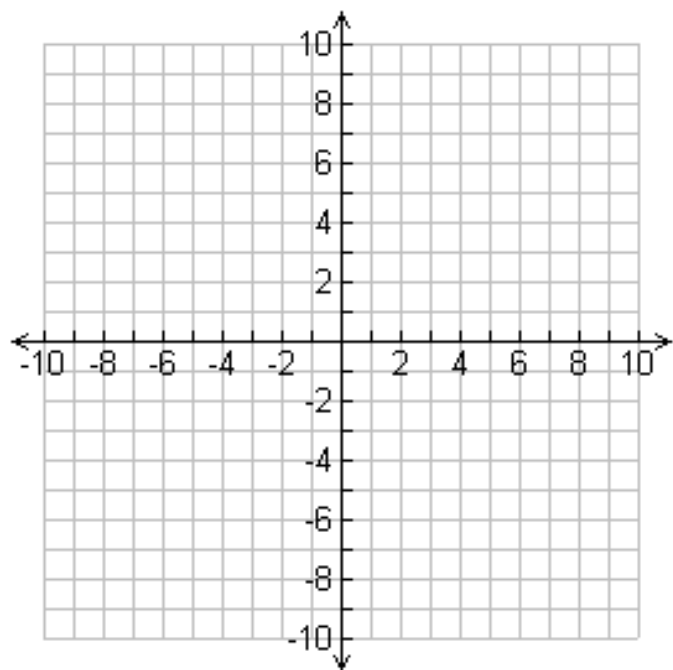
x	y
-3	
-2	
-1	
0	
1	
2	
3	

Vertex:

Zeroes:

Step Pattern:

Direction of Opening:



Equation: $y = 0.5x^2$

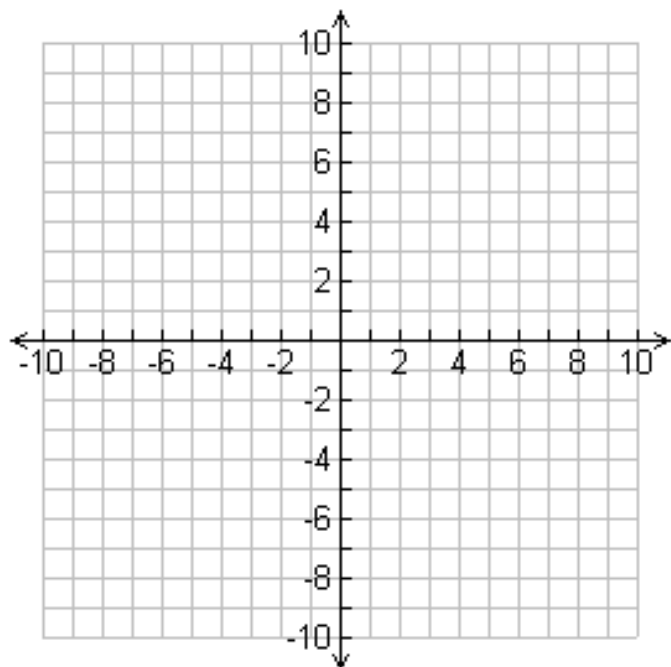
x	y
-3	
-2	
-1	
0	
1	
2	
3	

Vertex:

Zeroes:

Step Pattern:

Direction of Opening:



Summary

The graph of $y = ax^2$ is the graph of $y = x^2$ _____. If $a > 1$ or $a < -1$ the graph is _____. If $-1 < a < 1$ the graph is _____.

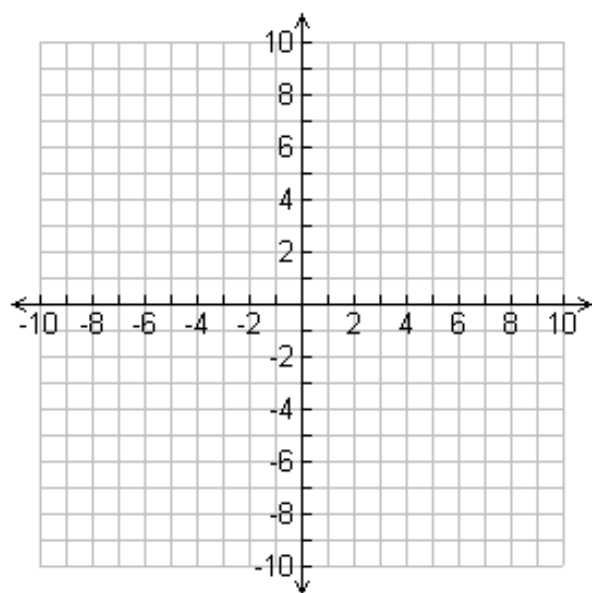
If $a > 0$ the parabola opens _____.

If $a < 0$ the graph is _____ and the parabola opens _____.

The “step pattern” of the parabola will be:

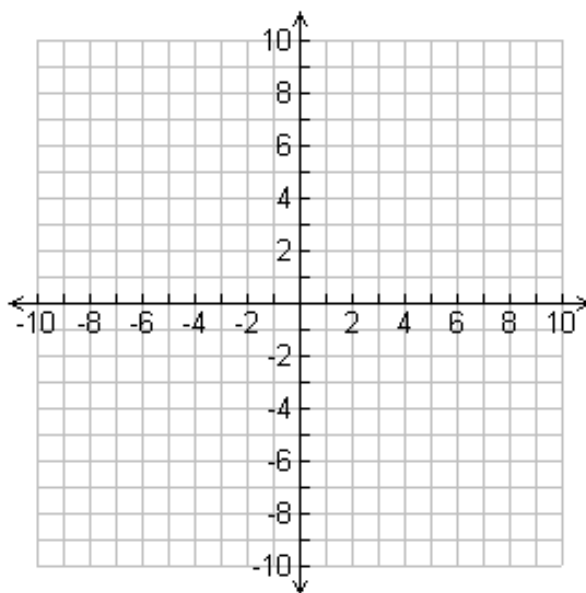
See if you can graph the following without making a table of values.

$$y = -3x^2$$



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

$$y = 0.25x^2$$



$$y = -x^2 + 8$$

