

NAME \_\_\_\_\_

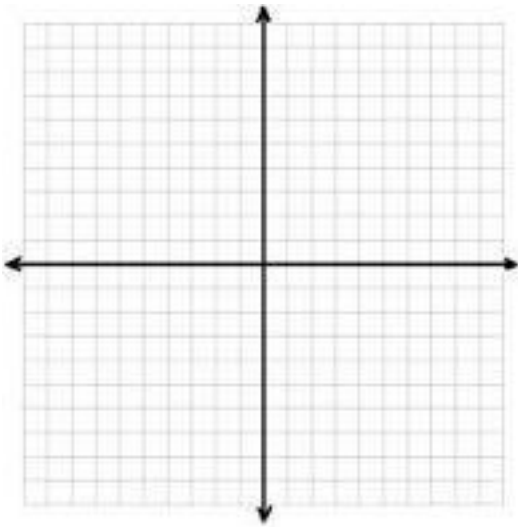
DATE \_\_\_\_\_

## Quadratic Graphs

In your graphing calculator, graph the function  $y = x^2$  (the quadratic parent function). Then graph each function below. Compare the new graph to the parent graph and write your observations about the location of the vertex, the overall shape, and the slope of the sides of the new graph in the blanks at the right.

### Part A: The Effect of $a$

1.  $y = 4x^2$

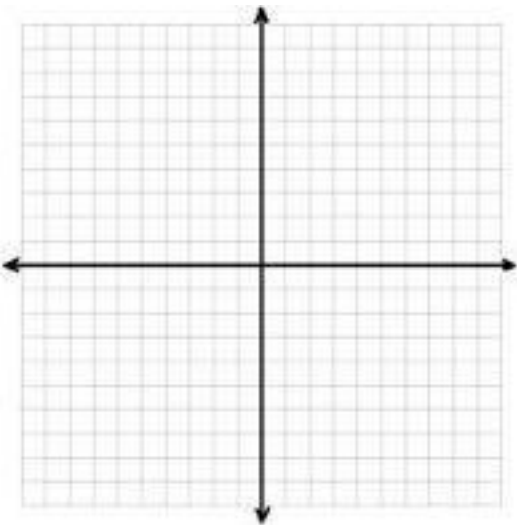


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

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

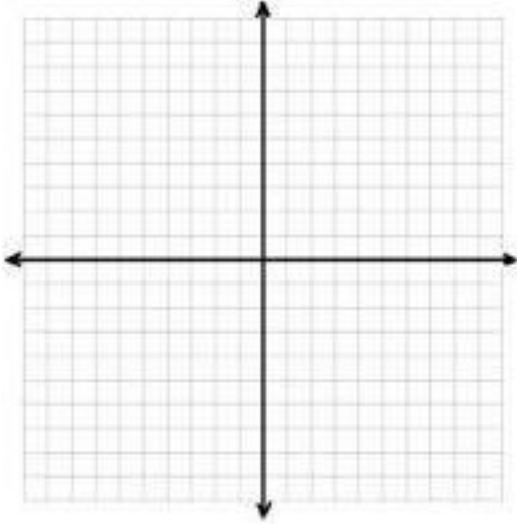


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

3.  $y = -4x^2$

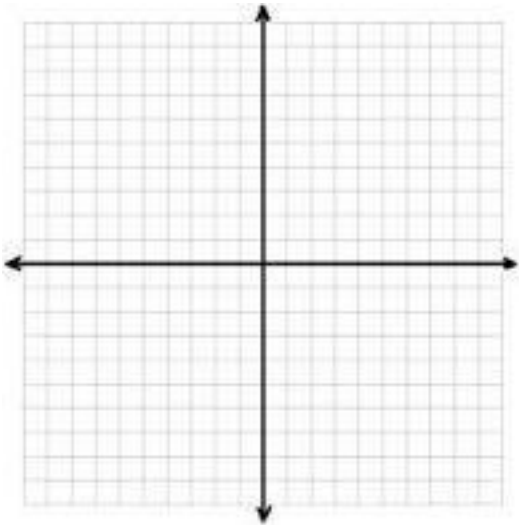


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

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



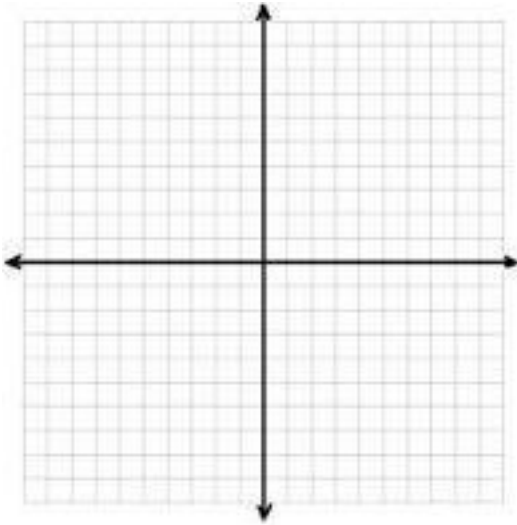
Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

**Part B: The Effect of  $h$**

5.  $y = (x+2)^2$

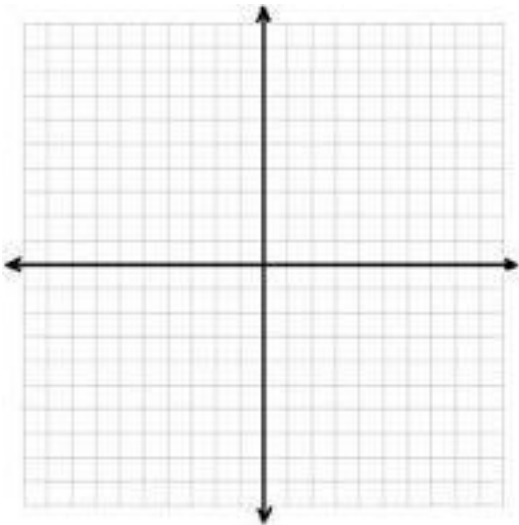


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

6.  $y = (x-4)^2$

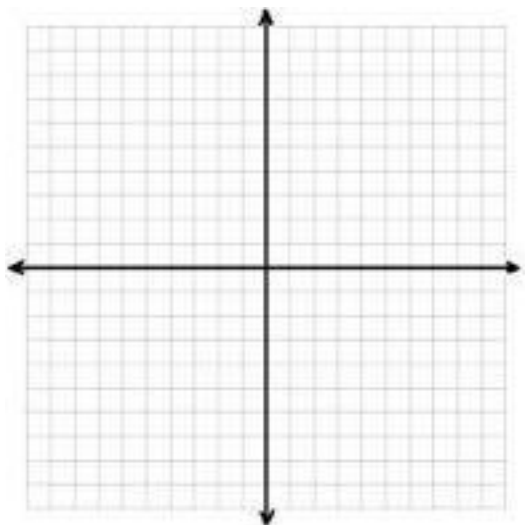


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

7.  $y = -(x+5)^2$

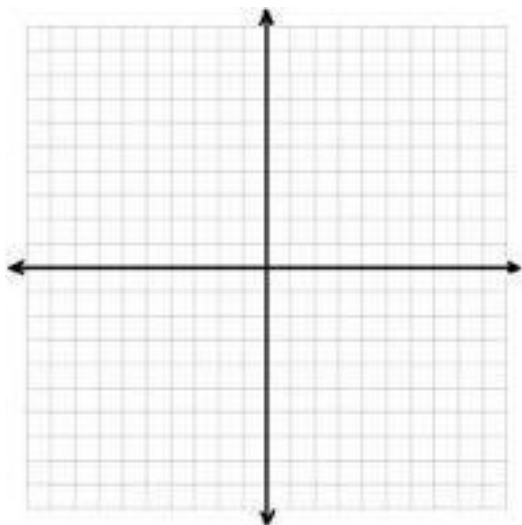


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

8.  $y = -(x-6)^2$



Vertex: \_\_\_\_\_

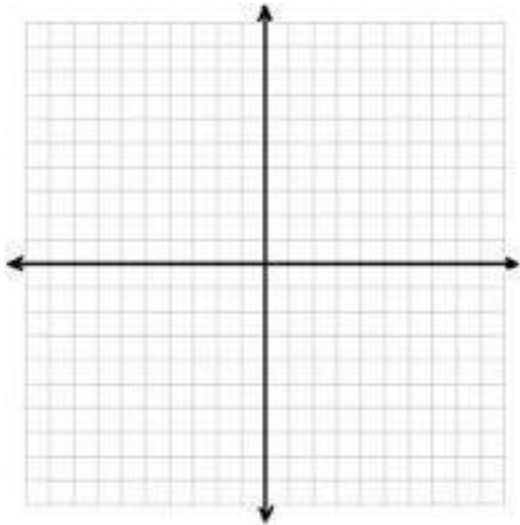
Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

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**Part C: The Effect of  $k$**

9.  $y = x^2 + 1$

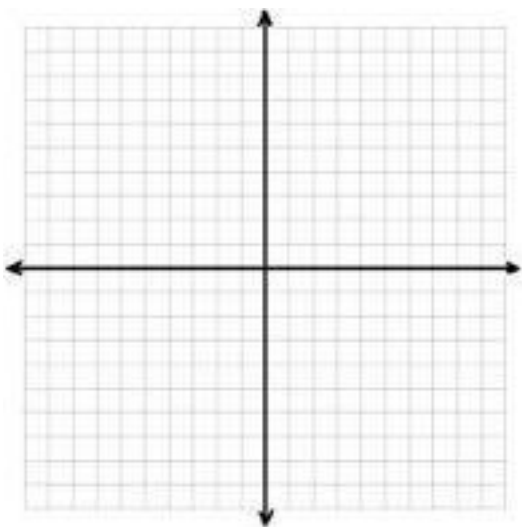


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

10.  $y = x^2 - 2$

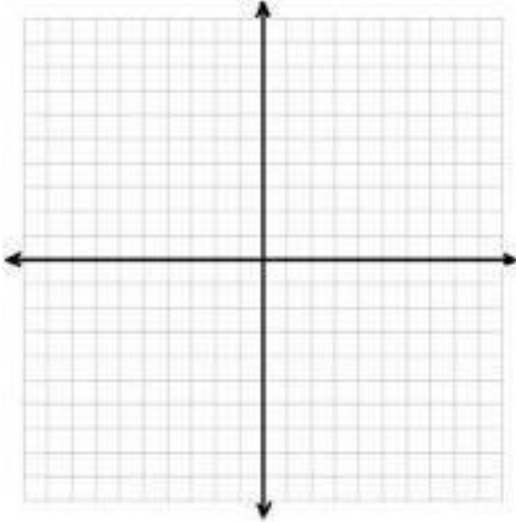


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

11.  $y = -x^2 + 7$

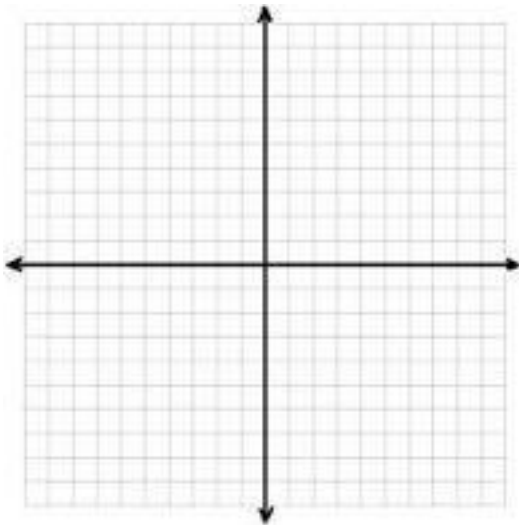


Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_

12.  $y = -x^2 - 10$



Vertex: \_\_\_\_\_

Shape Change or Shift Change? : \_\_\_\_\_

What was the change? \_\_\_\_\_