

## Graphing a Parabola

Step 1: Find the vertex. Graph it.

Step 2: Happy or sad parabola?

Step 3: What is  $a$ ?

Step 4: Plot points on one side of the vertex by the pattern below.

1 over, up/down  $a \cdot 1^2$

2 over, up/down  $a \cdot 2^2$

3 over, up/down  $a \cdot 3^2$

$n$  over, up/down  $a \cdot n^2$

Note: "Over" and "up" are counted from the vertex, not the last point graphed.

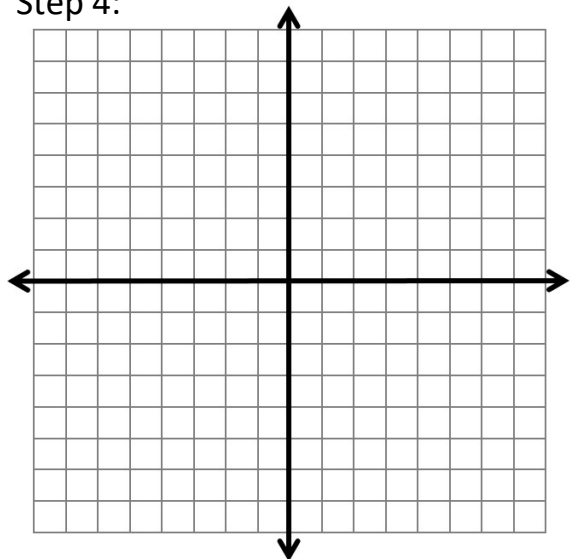
Example 1)  $f(x) = -2(x - 3)^2 + 5$

Step 1: Vertex = ( \_\_\_\_\_ , \_\_\_\_\_ )

Step 2: Happy or sad?

Step 3:  $a =$  \_\_\_\_\_

Step 4:



Example 2)  $f(x) = 3x^2 + 6x - 4$

Step 1: Vertex = ( \_\_\_\_\_ , \_\_\_\_\_ )

Step 2: Happy or sad?

Step 3:  $a =$  \_\_\_\_\_

Step 4:

