

\*Objective:

\*parabola:

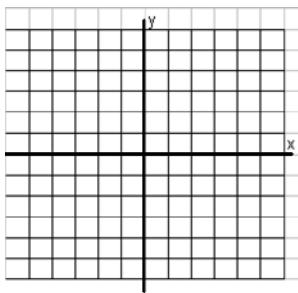
\*quadratic function:

\*vertex form:

* <u>The Parent Quadratic Function</u> :	*Diagram
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**Got It?** 1. a. What is the graph of  $f(x) = -\frac{1}{3}x^2$ ?

b. **Reasoning** What can you say about the graph of the function  $f(x) = ax^2$  if  $a$  is a negative number? Explain.



*Reflection, $a$ and $-a$	*Stretch, $a > 1$	*Compression, $0 < a < 1$
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\*minimum value (diagram):

\*maximum value (diagram):

**\*Translations of the Parabola**

\*Horizontal

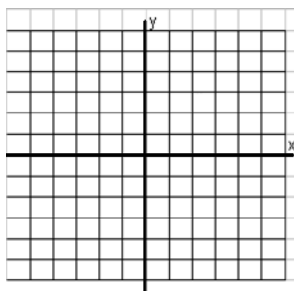
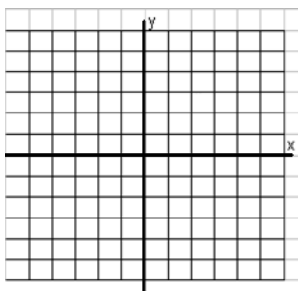
\*Vertical

\*Horizontal and Vertical

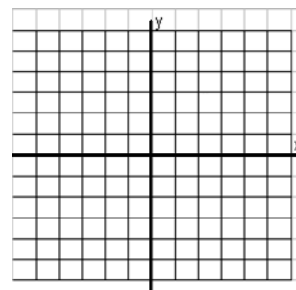
**Got It?** 2. Graph each function. How is it a translation of  $f(x) = x^2$ ?

a.  $g(x) = x^2 + 3$

b.  $h(x) = (x + 1)^2$

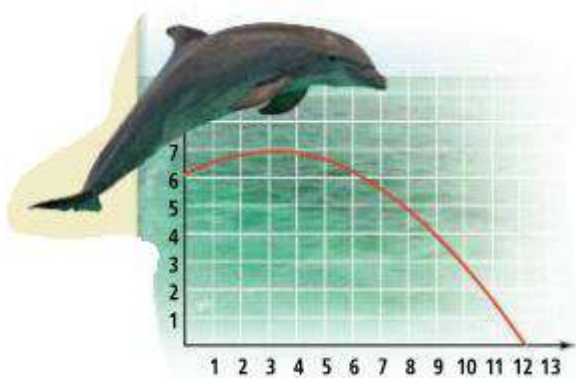


**Got It?** 3. What are the vertex, axis of symmetry, minimum or maximum, and domain and range of the function  $y = -2(x + 1)^2 + 4$ ?



**Got It?** 4. What steps transform the graph of  $y = x^2$  to  $y = 2(x + 2)^2 - 5$ ?

**Got It?** 5. Suppose the path of the jump changes so that the axis of symmetry becomes  $x = 2$  and the height stays the same. If the path of the jump also passes through the point  $(5, 5)$ , what quadratic function would model this path?



**Inclass:** p. 199 #26, 34, 36

**Homework:** p. 199 #7-37(odd)

**Interactmath:** #7, 9, 13, 17, 19, 27, 32, 35, 37