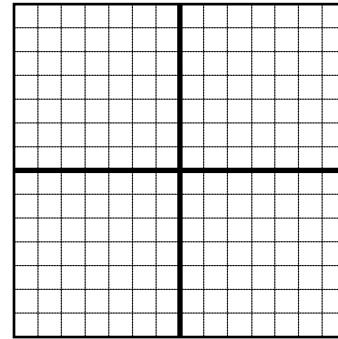


**Quadratic Functions (2.2)**

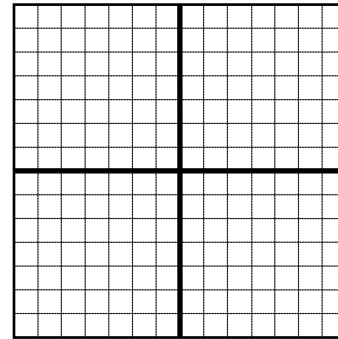
<b>Vertex Form:</b>	<b><math>ax^2 + bx + c</math> Form:</b>
---------------------	---

**Graphing Quadratic Functions:** Use the vertex, intercepts, and ratio to sketch the graph of each quadratic function. Give the equation of the parabola's axis of symmetry. Use the graph to determine the function's domain and range.

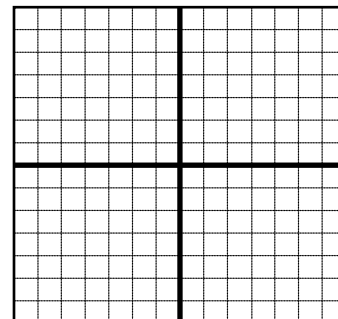
1)  $f(x) = -(x+1)^2 + 2$



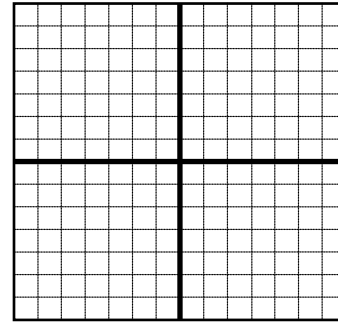
2)  $f(x) = -x^2 - 4x + 1$



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



4)  $f(x) = x^2 + 2x + 1$



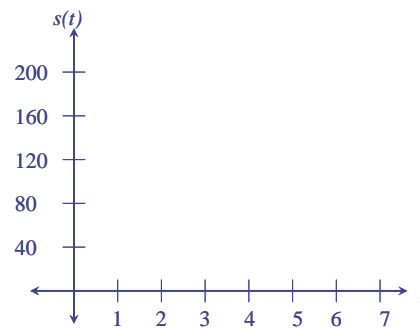
5) A person standing close to the edge on the top of a 150-foot building throws a baseball vertically upward. The quadratic function  $s(t) = -10t^2 + 40t + 150$  models the ball's height above the ground,  $s(t)$  in feet,  $t$  seconds after it was thrown.

a. After how many seconds does the ball reach its maximum height? What is the maximum height?

b. How many seconds does it take until the ball finally hits the ground? Round to the nearest tenth of a second.

c. Find  $s(0)$  and describe what this means.

d. Use your results from parts (a) through (c) to graph the quadratic function. Begin the graph with  $t = 0$  and end with the value of  $t$  for which the ball hits the ground.



6) You have 120 feet of fencing to enclose a rectangular region. Find the dimensions of the rectangle that maximize the enclosed area. What is the maximum area?