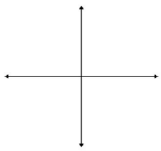
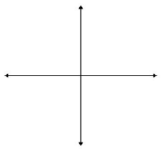
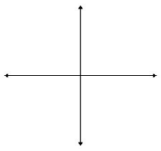
1. Find the vertex, axis of symmetry, any intercepts, state the minimum or maximum, and graph.
   a. $f(x) = x^2 + 7x + 8$



   b. $g(x) = 2x^2 - 6x + 5$



   c. $s(t) = -3t^2 - 3t + 1$



2. Find the vertex, domain, range, and state where the function is increasing and decreasing.
   a. $f(x) = x^2 + 4x - 5$
   b. $s(t) = -\frac{1}{2}t^2 + 5t - 8$

3. Answer the following questions for $f(x) = -x^2 + 2x + 8$
   a. Find the vertex.

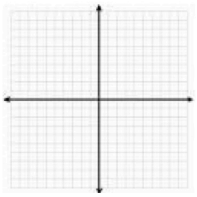
   b. Find the axis of symmetry.

   c. State whether there is a maximum or minimum and find that value.

   d. Find all intercepts (x- and y- intercepts).

   e. Find the intervals in which the function is increasing and decreasing.

   f. Sketch a graph of the function on the graph provided to the right.



5. A model rocket is launched with an initial velocity of 100 ft/s and from an initial height of 90 feet. The height of the rocket after t seconds is given by the function $s(t) = -16t^2 + 100t + 90$. Determine the time it takes for the rocket to reach maximum height and then find the maximum height.

6. Solve the following equation by using completing the square: $2x^2 - 6x = 3$

7. Solve the following equation by using the quadratic formula: $x^2 + 9 = 6x$