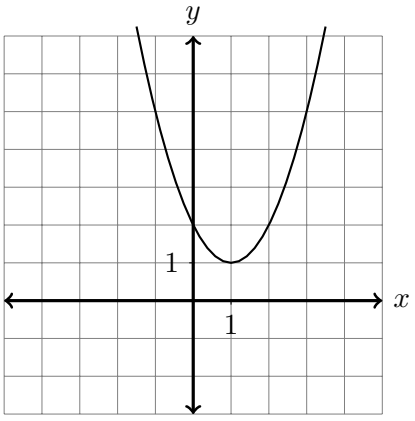
MAT 171 Section 3.1 Homework **Name:** _____

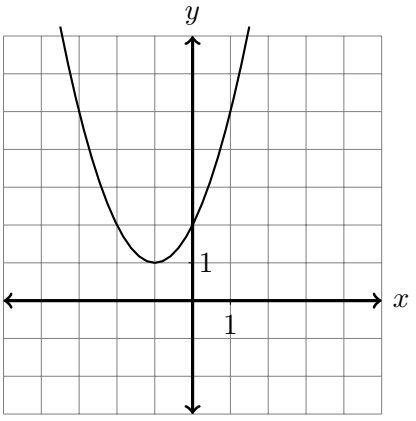
The graph of a quadratic function is given. Write the function's equation, selecting from the following options.

$f(x) = (x+1)^2 - 1$ $g(x) = (x+1)^2 + 1$ $h(x) = (x-1)^2 + 1$ $j(x) = (x-1)^2 - 1$

1.



2.



Find the coordinates of the vertex for the parabola defined by the given quadratic function.

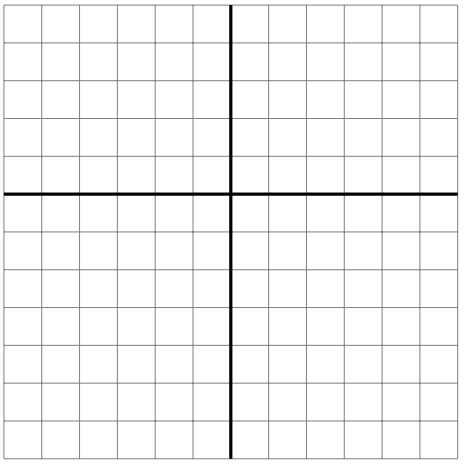
3. $f(x) = 2(x-3)^2 + 1$

4. $f(x) = 2x^2 - 8x + 3$

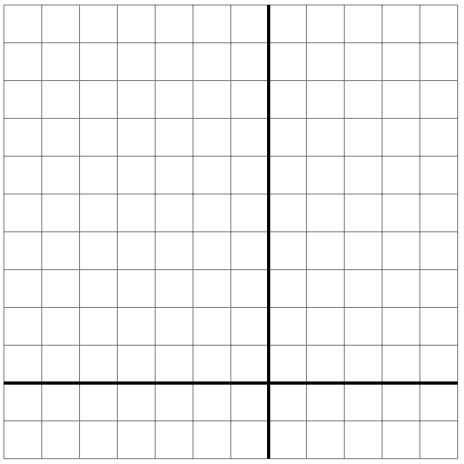
5. $f(x) = -x^2 - 2x + 8$

Use the vertex and intercepts to sketch the graph of each quadratic function. Give teh equation of the axis of symmetry. Use the graph to determine the function's domain and range.

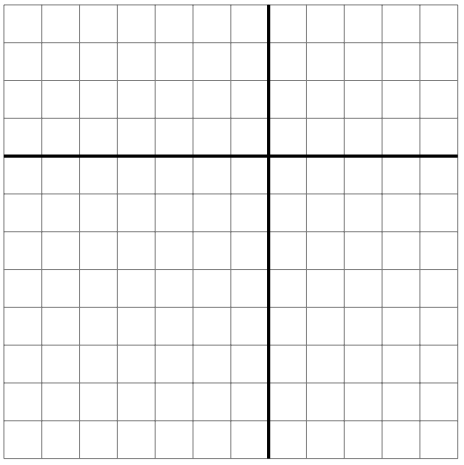
6. $f(x) = x^2 - 2x - 3$



7. $f(x) = 5 - 4x - x^2$



8. $f(x) = 2x^2 + 4x - 3$



An equation of a quadratic function is given.

a. Determine, without graphing, whether the function has a minimum or maximum value.
b. Find the minimum or maximum value and determine where it occurs
c. Identify the function's domain and range

9. $f(x) = 3x^2 - 12x - 1$

10. $f(x) = -4x^2 + 8x - 3$