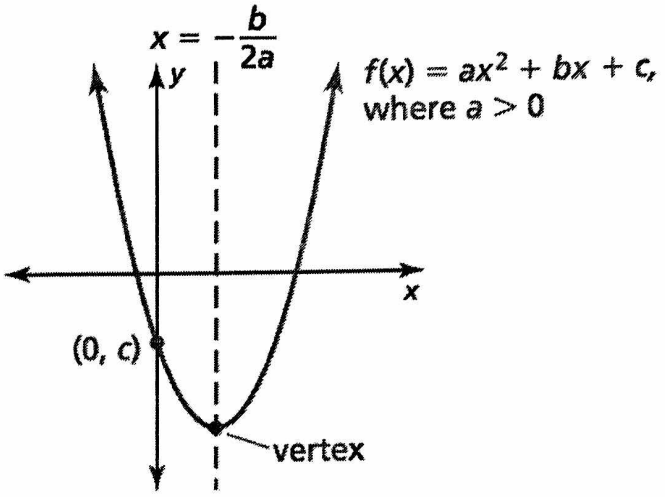
Graphing $f(x) = ax^2 + bx + c$

- The graph opens up when $a > 0$, and the graph opens down when $a < 0$.
- The y-intercept is c.
- The x-coordinate of the vertex is $-\frac{b}{2a}$.
- The axis of symmetry is $x = -\frac{b}{2a}$.



***X*-Intercepts:** Plug in $y = 0$ and solve for x-values.

***Y*-Intercept:** Plug in $x = 0$ and solve for y-value.

EX 1: For each quadratic function, identify the vertex, axis of symmetry, x-intercepts, and y-intercept. Graph!

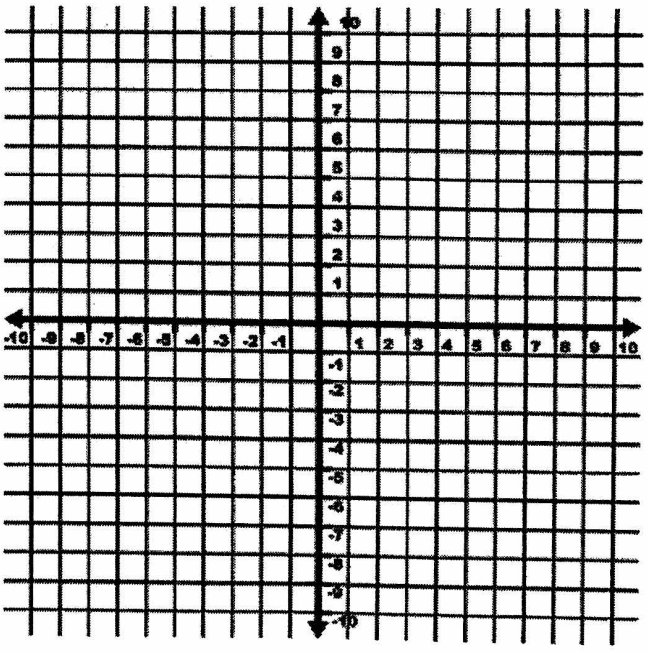
a) $y = x^2 + 2x - 8$

Vertex: _____

Axis of Symmetry: _____

X-Intercepts: _____

Y-Intercept: _____



EX 1 (continued): For each quadratic function, identify the vertex, axis of symmetry, x-intercepts, and y-intercept . Graph!

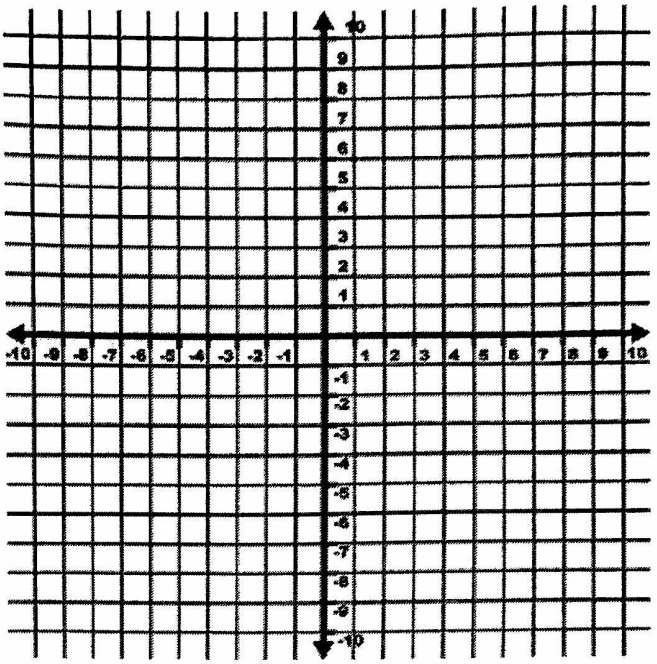
b) $y = -x^2 + 9$

Vertex: _____

Axis of Symmetry: _____

X-Intercepts: _____

Y-Intercept: _____



c) $y = x^2 - 5x$

Vertex: _____

Axis of Symmetry: _____

X-Intercepts: _____

Y-Intercept: _____