Sections 5.2 Algebra 2 Name _____
Basics Period _____

This function is in **standard form**. $f(x) = ax^2 + bx + c$. The graph of this quadratic function is a **parabola**.

The quadratic coefficient is ***a***, the linear coefficient is ***b*,** and the constant is ***c***.

The equation of the **axis of symmetry** of a function in standard form is found by using $x = \frac{-b}{2a}$.

The axis of symmetry always passes through the vertex, so the **x-coordinate of the vertex** is also $\frac{-b}{2a}$.

The **y-coordinate of the vertex** can be found by directly substituting this value back into the function replacing the x variable with this value. You can also find the y-coordinate by using synthetic substitution.

To find the **y-intercept**, set $x = 0$ and solve for x.

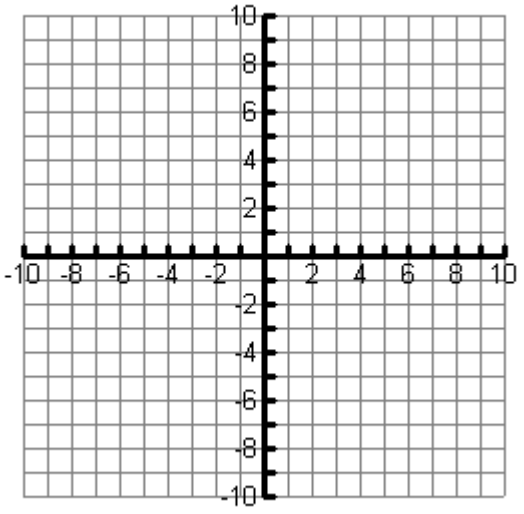
Consider the following function: $f(x) = 2x^2 - 12x + 8$.

Find: a =_____ b = _____ c = _____

Find the axis of symmetry: _____ vertex _____ y-intercept _____

Find the y-coordinates of these points then graph this function with the axis of symmetry, vertex, and points. Use the axis of symmetry to plot another point from the y-intercept found above.

X	Y
1	
2	
4	
5	



Find the domain of the graph _____

Find the range of the graph _____

Find the coordinates of the vertex of the parabola. _____

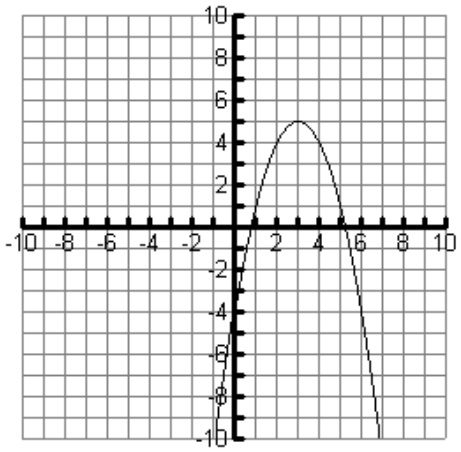
Find the equation of the axis of symmetry. _____

State the domain. _____

State the range. _____

Write the equation for the graph in vertex form.

_____



Review:

Use the description to write the quadratic function in vertex form. The parent function $f(x) = x^2$ is vertically stretched by a factor of 2 and then translated 4 units right and 3 units down to create $h(x)$.

State the transformations for the problems below.

$g(x) = (x-5)^2 - 3$

$g(x) = (\frac{1}{2}x)^2$

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