Name: _____ **Show work needed to justify your answer.** Date: _____

HW: # 10: Math IBSL - Standard 10 - Graphing Quadratic Functions 5 points

1. Write dow nthe equation of the **axis of symmetry** and the coordinates of the **vertex** for the graph of each function.

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

$x = 3$

$(3, 4)$

b $f(x) = (x-1)^2 - 5$

$x = 1$

$(1, -5)$

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

$x = -3$

$(-3, 2)$

2. Find the coordinates of the y-intercept, the equation for the Axis of Symmetry, and the coordinates of the vertex for each of the following:

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

y-int: $(0, 5)$

$x = \frac{8}{2(1)} \rightarrow x = 4$ A.S

$f(4) = 16 - 32 + 5$

$f(4) = -11$

$(4, -11)$ vertex

b $f(x) = 3x^2 - 6x + 2$

y-int: $(0, 2)$

$x = \frac{6}{2(3)} \rightarrow x = 1$

$f(1) = 3 - 6 + 2 = -1$

$(1, -1)$ vertex

c $f(x) = -2x^2 - 8x - 11$

y-int $(0, -11)$

$x = \frac{8}{2(-2)} \rightarrow x = -2$

$f(-2) = -8 + 16 - 11 = -3$

$(-2, -3)$ vertex

3. Find the coordinates of the x-intercepts, the equation for the axis of symmetry, and the coordinates of the vertex for the graph of each function.

a $f(x) = (x-2)(x-4)$

x-int: $(2, 0), (4, 0)$

$x = \frac{2+4}{2} \rightarrow x = 3$

vertex:

$f(3) = (3-2)(3-4)$

$(3, -1)$

b $f(x) = 4(x+3)(x-1)$

x-int: $(-3, 0), (1, 0)$

$x = \frac{-3+1}{2} \rightarrow x = -1$

vertex:

$f(-1) = 4(-1+3)(-1-1)$

$(4)(2)(-2)$

$(-1, -16)$

c $f(x) = -(x+5)(x-3)$

x-int: $(-5, 0), (3, 0)$

$x = \frac{-5+3}{2} \rightarrow x = -1$

$f(-1) = -(-1+5)(-1-3)$

$f(-1) = -(4)(-4) = 16$

$(-1, 16)$