M317 – Algebra II
Chapter 6A
Worksheet 2

Name_____

Date_____ Period_____

Teacher_____

A. Review. Identify the vertex and direction of opening for each quadratic function given in standard form.

1. $y = -3x^2 - 18x + 11$

2. $y = x^2 + 8x - 3$

3. $y = x^2 - 6x + 1$

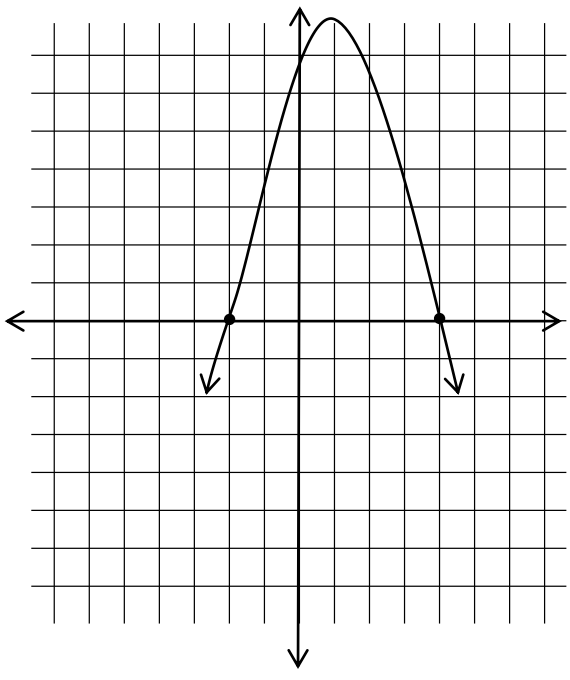
4. $y = -8x^2 + 3$

B. **Intercept Form of a Quadratic Function:** $\boxed{y = a(x-p)(x-q)}$

Characteristics of the graph:

1. The x-intercepts are p and q.
2. The vertex & axis of symmetry are halfway between (p,0) and (q,0).
3. The graph opens up if a > 0 and opens down if a < 0.

Example: Graph $y = -(x+2)(x-4)$. The x-intercepts occur at $(-2,0)$ and $(4,0)$. The vertex & axis of symmetry lie halfway between these points, at x = 1. So, the x-coordinate of the vertex is x = 1 and the y-coordinate of the vertex is: $y = -(1+2)(1-4) = 9$ thus giving a vertex at $(1,9)$. Since a is negative, the graph opens down.



C. Graph each quadratic given in intercept form. Identify the x-intercepts, vertex, direction of opening, and axis of symmetry.

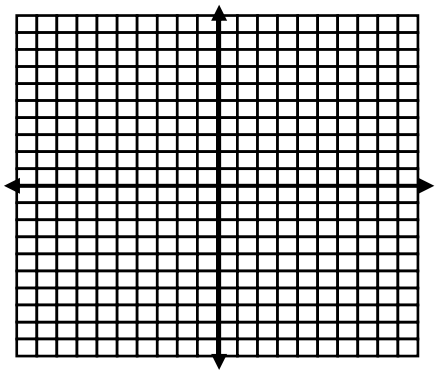
5. $y = 4(x+1)(x-1)$

x-intercepts: _____

Vertex: _____

Axis of sym: _____

Opens: _____



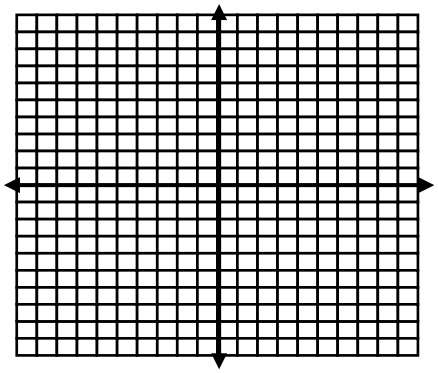
6. $y = -3x(x-2)$

x-intercepts: _____

Vertex: _____

Axis of sym: _____

Opens: _____



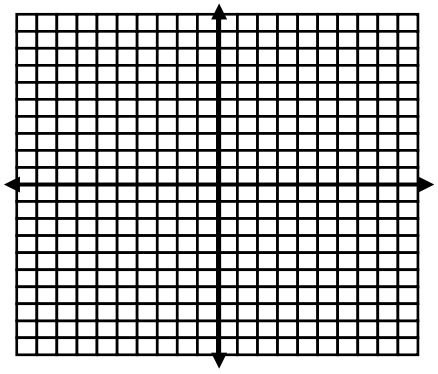
7. $y = \frac{1}{2}(x+5)(x+1)$

x-intercepts: _____

Vertex: _____

Axis of sym: _____

Opens: _____



D. Re-write each quadratic function in standard form. Identify the vertex and direction of opening.

8. $y = -2(x)(x+6)$

9. $f(x) = \frac{2}{3}(x-9)^2 - 4$

10. $g(x) = 3(x-6)(x-4)$

11. $y = -4(x+3)^2 + 2$