Name: _____   **Unit 8:** Quadratic Equations

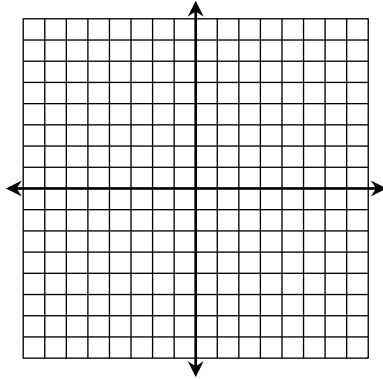**Date:** _____ **Bell:** _____   **Homework 3:** Vertex Form of a Quadratic Equation

** This is a 2-page document! **

Graph each equation and give the axis of symmetry, vertex, domain, and range. Then, identify the transformations of the equation from the parent function.

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

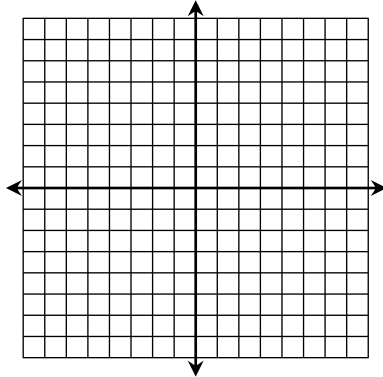| x	y

Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

2. $y = (x + 5)^2$

x	y

Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

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

x	y
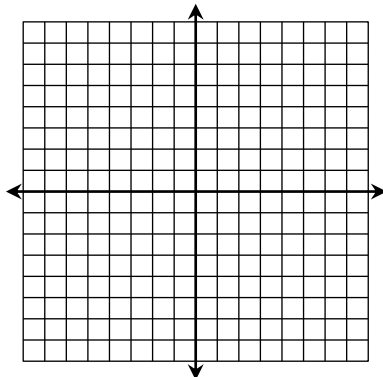
Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

4. $y = -(x + 1)^2 - 4$

x	y
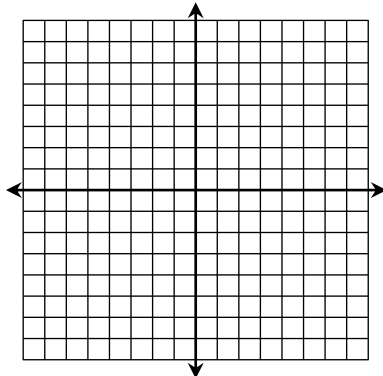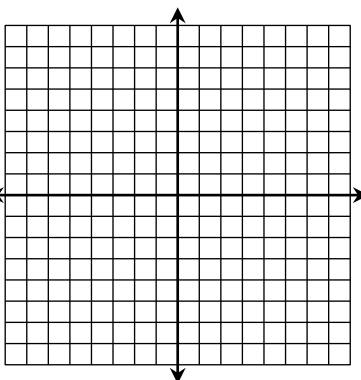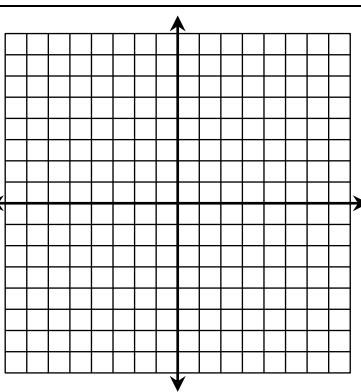
Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

5. $y = \dfrac{1}{3}(x-4)^2$

x	y

Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

6. $y = -2(x+3)^2 + 7$

x	y

Axis of Symmetry:

Vertex:

Domain:

Range:

Transformations:

Without graphing, describe the transformations from the parent function.

7. $y = (x-2)^2 - 1$

8. $y = 4x^2 - 5$

9. $y = -\dfrac{1}{2}(x+1)^2$

Transformations from the parent function are given below. Write an equation to represent the function.

10. reflected over the x-axis, then translated 6 units left

11. translated 1 unit right and 5 units down

12. vertically stretched by a factor of 3, then translated 4 units up

13. reflected over the x-axis, then vertically compressed by a factor of 1/4

14. reflected over the x-axis, then translated 8 units left and 3 units up

15. vertically stretched by a factor of 5/2, reflected over the x-axis, then translated 3 units down