12.7.D4 ~ Completing the Square

Past due on_____ Period____

Determine the equation of the axis of symmetry and the coordinates of the vertex WITHOUT graphing or completing the square. (Refer to page 778 in your Chapter 12 text.)

1) $f(x) = 2x^2 + 6x - 9$

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

Determine the roots of each quadratic equation by completing the square. Round your answer to the nearest hundredth. (If necessary, refer to the 12.7 example "Determining the Roots of a Quadratic Equation by the Completing the Square" in the Chapter 12 Summary.)

3) $v^2 + 6v - 3 = -6$

4) $x^2 - 16x - 57 = 3$

5) $a^2 + 4a - 95 = -10$

6) $m^2 - 10m - 80 = 4$

Solve each quadratic equation by taking square roots. Rewrite the roots in radical form. DO NOT APPROXIMATE. (If necessary, refer to the 12.6 example, "Extracting Square Roots to Solve Equations" in the Chapter 12 Summary.)

7) $6x^2 = 480$

8) $x^2 - 10 = 62$

Determine the roots of each quadratic equation via factoring and the Zero Product Property. (If necessary, refer to the 12.4 example "Solving Quadratic Equations Using Factoring" in the Chapter 12 Summary.)

9) $5x^2 = -16 + 24x$

10) $6x^2 + 5 = 17x$