Unit 8: Changing Forms of Quadratic Function Name_____

12.7.D2 ~ Completing the Square

Past due on_____ Period____

Complete the square and write the vertex form of the quadratic function. Identify the coordinates of its vertex and state whether the vertex represents a maximum or a minimum value. SHOW ALL WORK.

1) $y = x^2 + 18x - 307$

2) $y = x^2 - 2x - 323$

3) $y = -x^2 + 2x + 4$

4) $y = 2x^2 + 12x + 17$

5) $y = -3x^2 + 12x + 4$

6) $y = 4x^2 - 8x + 1$

Simplify each expression and write in standard form. (If necessary, refer to the 12.1 example "Adding & Subtracting Polynomial Expressions" in the Chapter 12 Summary.)

7) $(2v^2 + 4v^3 - 3v) - (4v + 4v^4 - 4v^3)$

8) $(2 + 3b - 8b^2) - (4 - 5b - 2b^2)$

Determine the product of the polynomials and write in standard form. (If necessary, refer to the 12.2 example "Modeling the Product of Polynomials" in the Chapter 12 Summary.)

9) $(3x + 4)(8x + 7)$

10) $(8a^2 - 8a - 1)(5a + 8)$

Factor each polynomial completely. REMEMBER TO LOOK FOR A GCF FIRST. (If necessary, refer to 12.3 example, "Factoring Trinomials" in the Chapter 12 Summary.)

11) $n^3 - 9n^2 + 20n$

12) $4x^2 - 144$

13) $3n^2 - 14n + 15$

14) $5a^2 + 27a - 18$

15) $8b^2 + 14b - 9$

16) $6n^2 + 29n + 30$