Unit 8: Changing Forms of Quadratic Function Name_____

12.7.D1 ~ Completing the Square

Past due on_____ Period____

Find the value that completes the square and then rewrite as a perfect square in factored form.

1) $y^2 - 20y + \_\_$

2) $n^2 + 10n + \_\_$

3) $x^2 + 2x + \_\_$

4) $a^2 - 42a + \_\_$

5) $r^2 - 28r + \_\_$

6) $y^2 + 14y + \_\_$

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.

7) $y = x^2 + 10x + 15$

8) $y = x^2 - 8x - 4$

9) $y = x^2 - 14x + 14$

10) $y = x^2 - 6x + 17$

Factor completely. (If necessary, refer to the 12.5 example "Identifying Special Products of Degree 2" in the Chapter 12 Summary.)

11) $121x^2 - 16$

12) $9v^2 - 64$

13) $4b^2 + 44b + 121$

14) $64v^2 - 80v + 25$

15) $81n^2 - 144n + 64$

16) $81x^2 + 72x + 16$

The factored form of a quadratic function is given. Multiply and write the function in standard form.

17) $y = 2(x - 3)(x + 1)$

18) $y = 3(x + 4)(x - 2)$

The standard form of a quadratic function is given. Write the function in factored form and then identify the zeros of the function. SHOW ALL WORK.

19) $y = 6x^2 - 66x + 108$

20) $y = 3x^2 + 39x + 108$

21) $y = 2x^2 - 24x + 54$

22) $y = 5x^2 + 5x - 450$