Name_____ Date_____

12.7 - Completing the Square

Factor into a square of binomials.

1) $y^2 + 6y + 9$

2) $x^2 - 4x + 4$

3) $p^2 - 14p + 49$

4) $a^2 + 16a + 64$

5) $x^6 + 10x^3 + 25$

6) $a^4 + 2a^2b^4 + b^8$

Complete the square. Then factor.

7) $x^2 + 14x + \underline{\hspace{2cm}}$

8) $z^2 + 18z + \underline{\hspace{2cm}}$

9) $k^2 - 12k + \underline{\hspace{2cm}}$

10) $a^2 - 20a + \underline{\hspace{2cm}}$

With the given equations: (a) move the constant to the right hand side, (b) complete the square, (c) balance the equation, and then (d) factor.

11) $x^2 - 4x - 17 = 0$

12) $y^2 + 8y - 10 = 0$

13) $c^2 + 18c - 175 = 0$

14) $v^2 - 20v + 19 = 0$

15) $z^2 - 6z - 307 = 8$

16) $y^2 + 18y + 32 = 226$

17) $x^2 - 12x + 35 = 0$

18) $m^2 - 2m - 35 = 0$

With the given equations: (a) organize the like terms (b) move the constant to the right hand side, (c) complete the square, (d) balance the equation, and then (e) factor.

19) $x^2 + y^2 - 2x + 6y + 3 = 0$

20) $x^2 + y^2 - 4x + 12y - 7 = 0$

21) $x^2 + y^2 + 8x - 2 = 0$

22) $x^2 + y^2 - 8x + 4y - 8 = 0$