SM2 Unit 6 Extra Practice

Name_____ ID: 1

Date_____ Period____

6.1 & 6.2- Solve each equation by completing the square.

1) $n^2 + 20n - 32 = 2$

$\{-10 + \sqrt{134}, -10 - \sqrt{134}\}$

2) $6x^2 + 12x - 10 = 8$

$\{1, -3\}$

3) $b^2 + 12b - 100 = -4$

$\{-6 + 2\sqrt{33}, -6 - 2\sqrt{33}\}$

4) $5n^2 - 20n + 19 = 4$

$\{3, 1\}$

5) $4b^2 + 16b - 9 = 3$

$\{-2 + \sqrt{7}, -2 - \sqrt{7}\}$

6) $n^2 - 14n + 34 = 10$

$\{12, 2\}$

7) $9m^2 + 18m - 94 = -3$

$\left\{\frac{7}{3}, -\frac{13}{3}\right\}$

8) $n^2 - 12n = 10$

$\{6 + \sqrt{46}, 6 - \sqrt{46}\}$

9) $b^2 - 20b + 85 = 10$

$\{15, 5\}$

10) $n^2 + 4n - 20 = -8$

$\{2, -6\}$

6.3- Solve each equation with the quadratic formula.

11) $6x^2 + 7x = -3$

$\left\{\frac{-7 + i\sqrt{23}}{12}, \frac{-7 - i\sqrt{23}}{12}\right\}$

12) $10r^2 - 4 = 11r$

$\left\{\frac{11 + \sqrt{281}}{20}, \frac{11 - \sqrt{281}}{20}\right\}$

13) $5r^2 - 21 = 8r$

$\left\{3, -\frac{7}{5}\right\}$

14) $9k^2 = 15 - 11k$

$\left\{\frac{-11 + \sqrt{661}}{18}, \frac{-11 - \sqrt{661}}{18}\right\}$

15) $10m^2 - 7 = 0$

$\left\{\frac{\sqrt{70}}{10}, -\frac{\sqrt{70}}{10}\right\}$

16) $v^2 - 121 = 0$

$\{11, -11\}$

17) $a^2 - 9a = -8$

$\{8, 1\}$

18) $10r^2 = 17 + 4r$

$\left\{\frac{2 + \sqrt{174}}{10}, \frac{2 - \sqrt{174}}{10}\right\}$

19) $9a^2 = 14$

$\left\{\frac{\sqrt{14}}{3}, -\frac{\sqrt{14}}{3}\right\}$

20) $a^2 = 100$

$\{10, -10\}$

6.4- Use the information provided to write the vertex form equation of each parabola.

21) $y = x^2 + 12x + 45$

$y = (x + 6)^2 + 9$

22) $x = \frac{1}{2}y^2 + 8y + 38$

$x = \frac{1}{2}(y + 8)^2 + 6$

23) $y = 7x^2 - 14x - 3$

$y = 7(x - 1)^2 - 10$

24) $x = 12y^2 - 168y + 589$

$x = 12(y - 7)^2 + 1$

25) $y = 4x^2 + 56x + 206$

$y = 4(x + 7)^2 + 10$

26) $y = 2x^2 + 32x + 126$

$y = 2(x + 8)^2 - 2$

6.5- Use the information provided to write the standard form equation of each circle.

27) $x^2 + y^2 - 20x + 36 = 0$

$(x - 10)^2 + y^2 = 64$

28) $x^2 + y^2 + 16x - 26y + 197 = 0$

$(x + 8)^2 + (y - 13)^2 = 36$

29) $x^2 + y^2 + 28x + 12y + 223 = 0$

$(x + 14)^2 + (y + 6)^2 = 9$

30) $x^2 + y^2 - 24y + 128 = 0$

$x^2 + (y - 12)^2 = 16$

31) $x^2 + y^2 + 28x - 20y + 280 = 0$

$(x + 14)^2 + (y - 10)^2 = 16$

32) $x^2 + y^2 - 12x - 18y + 81 = 0$

$(x - 6)^2 + (y - 9)^2 = 36$

33) $x^2 + y^2 + 20x + 84 = 0$

$(x + 10)^2 + y^2 = 16$

34) $x^2 + y^2 + 14x + 24y + 168 = 0$

$(x + 7)^2 + (y + 12)^2 = 25$

35) $x^2 + y^2 + 16x - 26y + 208 = 0$

$(x + 8)^2 + (y - 13)^2 = 25$

36) $x^2 + y^2 + 28x - 12y + 223 = 0$

$(x + 14)^2 + (y - 6)^2 = 9$