Algebra 2   Name_____

Solving by Completing the Square

Date_____ Period____

Solve each equation by completing the square.

1) $b^2 - 4b - 5 = 0$

2) $v^2 - 14v - 22 = 0$

3) $x^2 + 4x - 60 = 0$

4) $a^2 - 6a - 55 = 0$

5) $x^2 - 4x - 8 = 0$

6) $3r^2 - 12r + 73 = 5$

7) $3n^2 - 6n - 11 = -2$

8) $5k^2 - 10k - 19 = 8$

9) $4m^2 + 8m - 20 = -8$

10) $4x^2 + 16x + 22 = 7$

11) $n^2 - 10n + 48 = -9$

12) $2v^2 + 8v + 26 = 7$

13) $p^2 - 8p - 52 = -4$

14) $b^2 - 18b + 83 = -4$

15) $x^2 + 2x - 45 = -10$

16) $9k = -99 - k^2$

17) $x^2 - 11x = -58$

18) $106 - 9a = -7a^2$

19) $47 = -n^2 + n$

20) $8x^2 + 61 = -13x$

21) $-2x^2 - 19x + 58 = -12 - 3x^2$

22) $10k^2 + 16k = -88$

23) $2x^2 - 12x = 45 - 10x^2$

24) $9n^2 - 136 = 2n$

25) $-5p^2 - 19p = 92 - 6p^2$

Answers to Solving by Completing the Square (ID: 1)

1) $\{5, -1\}$

2) $\{15.426, -1.426\}$

3) $\{6, -10\}$

4) $\{11, -5\}$

5) $\{5.464, -1.464\}$

6) $\left\{\dfrac{6 + 2i\sqrt{42}}{3}, \dfrac{6 - 2i\sqrt{42}}{3}\right\}$

7) $\{3, -1\}$

8) $\left\{\dfrac{5 + 4\sqrt{10}}{5}, \dfrac{5 - 4\sqrt{10}}{5}\right\}$

9) $\{1, -3\}$

10) $\left\{-\dfrac{3}{2}, -\dfrac{5}{2}\right\}$

11) $\{5 + 4i\sqrt{2}, 5 - 4i\sqrt{2}\}$

12) $\left\{\dfrac{-4 + i\sqrt{22}}{2}, \dfrac{-4 - i\sqrt{22}}{2}\right\}$

13) $\{12, -4\}$

14) $\{9 + i\sqrt{6}, 9 - i\sqrt{6}\}$

15) $\{5, -7\}$

16) $\left\{\dfrac{-9 + 3i\sqrt{35}}{2}, \dfrac{-9 - 3i\sqrt{35}}{2}\right\}$

17) $\left\{\dfrac{11 + i\sqrt{111}}{2}, \dfrac{11 - i\sqrt{111}}{2}\right\}$

18) $\left\{\dfrac{9 + i\sqrt{2887}}{14}, \dfrac{9 - i\sqrt{2887}}{14}\right\}$

19) $\left\{\dfrac{1 + i\sqrt{187}}{2}, \dfrac{1 - i\sqrt{187}}{2}\right\}$

20) $\left\{\dfrac{-13 + i\sqrt{1783}}{16}, \dfrac{-13 - i\sqrt{1783}}{16}\right\}$

21) $\{14, 5\}$

22) $\left\{\dfrac{-4 + 2i\sqrt{51}}{5}, \dfrac{-4 - 2i\sqrt{51}}{5}\right\}$

23) $\left\{\dfrac{5}{2}, -\dfrac{3}{2}\right\}$

24) $\left\{4, -\dfrac{34}{9}\right\}$

25) $\{23, -4\}$