

Solving Quadratic Equations By Completing the Square Date _____ Period _____

Solve each equation by completing the square.

1) $p^2 + 14p - 38 = 0$

2) $v^2 + 6v - 59 = 0$

3) $a^2 + 14a - 51 = 0$

4) $x^2 - 12x + 11 = 0$

5) $x^2 + 6x + 8 = 0$

6) $n^2 - 2n - 3 = 0$

7) $x^2 + 14x - 15 = 0$

8) $k^2 - 12k + 23 = 0$

9) $r^2 - 4r - 91 = 7$

10) $x^2 - 10x + 26 = 8$

11) $k^2 - 4k + 1 = -5$

12) $b^2 + 2b = -20$

$$13) v^2 - 6v = -91$$

$$14) n^2 = 18n + 40$$

$$15) 5k^2 = 60 - 20k$$

$$16) 6x^2 - 48 = -12x$$

$$17) 8x^2 + 16x = 42$$

$$18) 9n^2 + 79 = -18n$$

$$19) 2a^2 = -6 + 8a$$

$$20) 2x^2 - 5x + 67 = 0$$

$$21) 4n^2 + 4n + 36 = 0$$

$$22) 7k^2 - 16k + 100 = 0$$

$$23) 10p^2 + 4p + 77 = 9$$

$$24) 3x^2 = -4 + 8x$$

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Solve each equation by completing the square.

1) $p^2 + 14p - 38 = 0$

$$\{-7 + \sqrt{87}, -7 - \sqrt{87}\}$$

2) $v^2 + 6v - 59 = 0$

$$\{-3 + 2\sqrt{17}, -3 - 2\sqrt{17}\}$$

3) $a^2 + 14a - 51 = 0$

$$\{3, -17\}$$

4) $x^2 - 12x + 11 = 0$

$$\{11, 1\}$$

5) $x^2 + 6x + 8 = 0$

$$\{-2, -4\}$$

6) $n^2 - 2n - 3 = 0$

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

7) $x^2 + 14x - 15 = 0$

$$\{1, -15\}$$

8) $k^2 - 12k + 23 = 0$

$$\{6 + \sqrt{13}, 6 - \sqrt{13}\}$$

9) $r^2 - 4r - 91 = 7$

$$\{2 + \sqrt{102}, 2 - \sqrt{102}\}$$

10) $x^2 - 10x + 26 = 8$

$$\{5 + \sqrt{7}, 5 - \sqrt{7}\}$$

11) $k^2 - 4k + 1 = -5$

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

12) $b^2 + 2b = -20$

$$\{-1 + i\sqrt{19}, -1 - i\sqrt{19}\}$$

$$13) v^2 - 6v = -91$$
$$\{3 + i\sqrt{82}, 3 - i\sqrt{82}\}$$

$$14) n^2 = 18n + 40$$
$$\{20, -2\}$$

$$15) 5k^2 = 60 - 20k$$
$$\{2, -6\}$$

$$16) 6x^2 - 48 = -12x$$
$$\{2, -4\}$$

$$17) 8x^2 + 16x = 42$$
$$\left\{\frac{3}{2}, -\frac{7}{2}\right\}$$

$$18) 9n^2 + 79 = -18n$$
$$\left\{\frac{-3 + i\sqrt{70}}{3}, \frac{-3 - i\sqrt{70}}{3}\right\}$$

$$19) 2a^2 = -6 + 8a$$
$$\{3, 1\}$$

$$20) 2x^2 - 5x + 67 = 0$$
$$\left\{\frac{5 + i\sqrt{511}}{4}, \frac{5 - i\sqrt{511}}{4}\right\}$$

$$21) 4n^2 + 4n + 36 = 0$$
$$\left\{\frac{-1 + i\sqrt{35}}{2}, \frac{-1 - i\sqrt{35}}{2}\right\}$$

$$22) 7k^2 - 16k + 100 = 0$$
$$\left\{\frac{8 + 2i\sqrt{159}}{7}, \frac{8 - 2i\sqrt{159}}{7}\right\}$$

$$23) 10p^2 + 4p + 77 = 9$$
$$\left\{\frac{-1 + 13i}{5}, \frac{-1 - 13i}{5}\right\}$$

$$24) 3x^2 = -4 + 8x$$
$$\left\{2, \frac{2}{3}\right\}$$