Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $n^2 + 10n - 24 = 0$

2) $v^2 - 8v + 12 = 0$

3) $m^2 - 10m - 24 = 0$

4) $m^2 + 12m + 27 = 0$

5) $x^2 + 6x - 30 = 0$

6) $b^2 + 16b + 50 = 0$

7) $3v^2 - 12v - 63 = 0$

8) $5r^2 + 10r - 15 = 0$

9) $k^2 + 10k - 24 = 0$

10) $7k^2 + 14k - 56 = 0$

11) $r^2 + 16r - 80 = 0$

12) $x^2 - 6x - 78 = 0$

13) $x^2 - 26x + 18 = -7x$

14) $10m^2 + 11m - 20 = -4 + 5m$

15) $x^2 + 10x - 66 = 10 - 5x$

16) $3v^2 + 24v - 96 = -5v^2 + 1$

17) $5x^2 + 21x - 91 = -9$

18) $4v^2 + 13 = -1 + 3v^2 - 9v$

Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $n^2 + 10n - 24 = 0$

$\{2, -12\}$

2) $v^2 - 8v + 12 = 0$

$\{6, 2\}$

3) $m^2 - 10m - 24 = 0$

$\{12, -2\}$

4) $m^2 + 12m + 27 = 0$

$\{-3, -9\}$

5) $x^2 + 6x - 30 = 0$

$\{-3 + \sqrt{39}, -3 - \sqrt{39}\}$

6) $b^2 + 16b + 50 = 0$

$\{-8 + \sqrt{14}, -8 - \sqrt{14}\}$

7) $3v^2 - 12v - 63 = 0$

$\{7, -3\}$

8) $5r^2 + 10r - 15 = 0$

$\{1, -3\}$

9) $k^2 + 10k - 24 = 0$

$\{2, -12\}$

10) $7k^2 + 14k - 56 = 0$

$\{2, -4\}$

11) $r^2 + 16r - 80 = 0$

$\{4, -20\}$

12) $x^2 - 6x - 78 = 0$

$\{3 + \sqrt{87}, 3 - \sqrt{87}\}$

13) $x^2 - 26x + 18 = -7x$

$\{18, 1\}$

14) $10m^2 + 11m - 20 = -4 + 5m$

$\left\{1, -\frac{8}{5}\right\}$

15) $x^2 + 10x - 66 = 10 - 5x$

$\{4, -19\}$

16) $3v^2 + 24v - 96 = -5v^2 + 1$

$\left\{\frac{-6 + \sqrt{230}}{4}, \frac{-6 - \sqrt{230}}{4}\right\}$

17) $5x^2 + 21x - 91 = -9$

$\left\{\frac{-21 + \sqrt{2081}}{10}, \frac{-21 - \sqrt{2081}}{10}\right\}$

18) $4v^2 + 13 = -1 + 3v^2 - 9v$

$\{-2, -7\}$

Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $x^2 - 14x - 11 = 0$

2) $x^2 - 14x + 13 = 0$

3) $k^2 - 10k + 9 = 0$

4) $b^2 - 8b - 22 = 0$

5) $x^2 + 4x - 32 = 0$

6) $n^2 + 2n - 63 = 0$

7) $4a^2 - 8a - 32 = 0$

8) $5n^2 + 10n - 15 = 0$

9) $4x^2 + 16x - 9 = 0$

10) $p^2 - 6p - 49 = 0$

11) $5n^2 + 20n - 60 = 0$

12) $n^2 + 14n - 71 = 0$

13) $9m^2 + 15m - 3 = 8m^2$

14) $a^2 - 12 = -8 + 3a$

15) $9x^2 - 10x - 82 = -5 - 12x$

16) $-9n^2 + 30 = -10n^2 - 11n$

17) $k^2 + 12k - 6 = 7k$

18) $r^2 - 71 = r$

Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $x^2 - 14x - 11 = 0$

$\{7 + 2\sqrt{15}, 7 - 2\sqrt{15}\}$

2) $x^2 - 14x + 13 = 0$

$\{13, 1\}$

3) $k^2 - 10k + 9 = 0$

$\{9, 1\}$

4) $b^2 - 8b - 22 = 0$

$\{4 + \sqrt{38}, 4 - \sqrt{38}\}$

5) $x^2 + 4x - 32 = 0$

$\{4, -8\}$

6) $n^2 + 2n - 63 = 0$

$\{7, -9\}$

7) $4a^2 - 8a - 32 = 0$

$\{4, -2\}$

8) $5n^2 + 10n - 15 = 0$

$\{1, -3\}$

9) $4x^2 + 16x - 9 = 0$

$\left\{\frac{1}{2}, -\frac{9}{2}\right\}$

10) $p^2 - 6p - 49 = 0$

$\{3 + \sqrt{58}, 3 - \sqrt{58}\}$

11) $5n^2 + 20n - 60 = 0$

$\{2, -6\}$

12) $n^2 + 14n - 71 = 0$

$\{-7 + 2\sqrt{30}, -7 - 2\sqrt{30}\}$

13) $9m^2 + 15m - 3 = 8m^2$

$\left\{\frac{-15 + \sqrt{237}}{2}, \frac{-15 - \sqrt{237}}{2}\right\}$

14) $a^2 - 12 = -8 + 3a$

$\{4, -1\}$

15) $9x^2 - 10x - 82 = -5 - 12x$

$\left\{\frac{-1 + \sqrt{694}}{9}, \frac{-1 - \sqrt{694}}{9}\right\}$

16) $-9n^2 + 30 = -10n^2 - 11n$

$\{-5, -6\}$

17) $k^2 + 12k - 6 = 7k$

$\{1, -6\}$

18) $r^2 - 71 = r$

$\left\{\frac{1 + \sqrt{285}}{2}, \frac{1 - \sqrt{285}}{2}\right\}$

Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $n^2 - 8n + 15 = 0$

2) $k^2 - 12k + 20 = 0$

3) $k^2 + 8k + 8 = 0$

4) $n^2 + 14n + 42 = 0$

5) $r^2 + 2r - 28 = 0$

6) $m^2 + 10m + 16 = 0$

7) $7v^2 + 14v - 11 = 0$

8) $3x^2 + 18x - 87 = 0$

9) $3n^2 + 6n - 45 = 0$

10) $x^2 - 14x + 1 = 0$

11) $a^2 - 2a - 35 = 0$

12) $x^2 - 18x + 17 = 0$

13) $7a^2 - 19a = -12a + 14$

14) $n^2 + 7n - 38 = 7$

15) $-9a^2 + 6a - 129 = -9a - 10a^2$

16) $5x^2 + 17x - 44 = -7x^2$

17) $4v^2 + v - 22 = v^2$

18) $v^2 + 7v - 129 = -8$

Grade 10 Academic Math Name_____

Solving Quadratics by Completing the Square

Date_____

Solve each equation by completing the square. (every 6 questions is another level of difficulty)

1) $n^2 - 8n + 15 = 0$

$\{5, 3\}$

2) $k^2 - 12k + 20 = 0$

$\{10, 2\}$

3) $k^2 + 8k + 8 = 0$

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

4) $n^2 + 14n + 42 = 0$

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

5) $r^2 + 2r - 28 = 0$

$\{-1 + \sqrt{29}, -1 - \sqrt{29}\}$

6) $m^2 + 10m + 16 = 0$

$\{-2, -8\}$

7) $7v^2 + 14v - 11 = 0$

$\left\{\frac{-7 + 3\sqrt{14}}{7}, \frac{-7 - 3\sqrt{14}}{7}\right\}$

8) $3x^2 + 18x - 87 = 0$

$\{-3 + \sqrt{38}, -3 - \sqrt{38}\}$

9) $3n^2 + 6n - 45 = 0$

$\{3, -5\}$

10) $x^2 - 14x + 1 = 0$

$\{7 + 4\sqrt{3}, 7 - 4\sqrt{3}\}$

11) $a^2 - 2a - 35 = 0$

$\{7, -5\}$

12) $x^2 - 18x + 17 = 0$

$\{17, 1\}$

13) $7a^2 - 19a = -12a + 14$

$\{2, -1\}$

14) $n^2 + 7n - 38 = 7$

$\left\{\frac{-7 + \sqrt{229}}{2}, \frac{-7 - \sqrt{229}}{2}\right\}$

15) $-9a^2 + 6a - 129 = -9a - 10a^2$

$\left\{\frac{-15 + \sqrt{741}}{2}, \frac{-15 - \sqrt{741}}{2}\right\}$

16) $5x^2 + 17x - 44 = -7x^2$

$\left\{\frac{4}{3}, -\frac{11}{4}\right\}$

17) $4v^2 + v - 22 = v^2$

$\left\{\frac{-1 + \sqrt{265}}{6}, \frac{-1 - \sqrt{265}}{6}\right\}$

18) $v^2 + 7v - 129 = -8$

$\left\{\frac{-7 + \sqrt{533}}{2}, \frac{-7 - \sqrt{533}}{2}\right\}$