

Name : _____

Score : _____

Teacher : _____

Date : _____

Solve Quadratic Equations by Completing the Square

Solve each equation by completing the square.

1) $h^2 + 19h + 2 = -13$

6) $24r^2 + 6r - 1 = 2$

2) $15d^2 - 71d = 36$

7) $20k^2 - 9k - 20 = 0$

3) $y^2 - 18y - 72 = 0$

8) $x^2 - 22x = 60$

4) $q^2 + 18q = 32$

9) $24s^2 - 117s - 54 = 16$

5) $18n^2 - 33n + 15 = 0$

10) $g^2 + 16g - 1 = 15$



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Solve each equation by completing the square.

1) $h^2 + 19h + 2 = -13$

$$h = \left\{ \frac{-19 + \sqrt{301}}{2}, \frac{-19 - \sqrt{301}}{2} \right\}$$

6) $24r^2 + 6r - 1 = 2$

$$r = \left\{ \frac{-1}{2}, \frac{1}{4} \right\}$$

2) $15d^2 - 71d = 36$

$$d = \left\{ \frac{71 + \sqrt{7201}}{30}, \frac{71 - \sqrt{7201}}{30} \right\}$$

7) $20k^2 - 9k - 20 = 0$

$$k = \left\{ \frac{-4}{5}, \frac{5}{4} \right\}$$

3) $y^2 - 18y - 72 = 0$

$$y = \left\{ 9 + 3\sqrt{17}, 9 - 3\sqrt{17} \right\}$$

8) $x^2 - 22x = 60$

$$x = \left\{ 11 + \sqrt{181}, 11 - \sqrt{181} \right\}$$

4) $q^2 + 18q = 32$

$$q = \left\{ -9 + \sqrt{113}, -9 - \sqrt{113} \right\}$$

9) $24s^2 - 117s - 54 = 16$

$$s = \left\{ \frac{117 + \sqrt{20409}}{48}, \frac{117 - \sqrt{20409}}{48} \right\}$$

5) $18n^2 - 33n + 15 = 0$

$$n = \left\{ \frac{5}{6}, 1 \right\}$$

10) $g^2 + 16g - 1 = 15$

$$g = \left\{ -8 + 4\sqrt{5}, -8 - 4\sqrt{5} \right\}$$

