

Math Sheet

Name _____ Score _____ / 10 Teacher _____ Date _____

Solving Quadratics by Completing the Square

Solve each quadratic by completing the square. Give every exact real root.

1. $25c^2 + 30c + 9 = 0$

6. $16p^2 - 8p - 35 = 0$

2. $m^2 + 4m - 21 = 0$

7. $y^2 - 2y - 15 = 0$

3. $15x^2 - 22x - 5 = 0$

8. $z^2 + z - 12 = 0$

4. $m^2 + 5m - 14 = 0$

9. $z^2 + 2z - 3 = 0$

5. $15r^2 + r - 2 = 0$

10. $12c^2 + 4c - 56 = 0$

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Answer Key

Solve each quadratic by completing the square. Give every exact real root.

1. $25c^2 + 30c + 9 = 0$

$$c \in \left\{ -\frac{3}{5} \right\}$$

$$\left(c + \frac{3}{5} \right)^2 = 0$$

6. $16p^2 - 8p - 35 = 0$

$$p \in \left\{ -\frac{5}{4}, \frac{7}{4} \right\}$$

$$\left(p - \frac{1}{4} \right)^2 = \frac{9}{4}$$

2. $m^2 + 4m - 21 = 0$

$$m \in \{-7, 3\}$$

$$(m + 2)^2 = 25$$

7. $y^2 - 2y - 15 = 0$

$$y \in \{-3, 5\}$$

$$(y - 1)^2 = 16$$

3. $15x^2 - 22x - 5 = 0$

$$x \in \left\{ \frac{-1}{5}, \frac{5}{3} \right\}$$

$$\left(x - \frac{11}{15} \right)^2 = \frac{196}{225}$$

8. $z^2 + z - 12 = 0$

$$z \in \{-4, 3\}$$

$$\left(z + \frac{1}{2} \right)^2 = \frac{49}{4}$$

4. $m^2 + 5m - 14 = 0$

$$m \in \{-7, 2\}$$

$$\left(m + \frac{5}{2} \right)^2 = \frac{81}{4}$$

9. $z^2 + 2z - 3 = 0$

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

$$(z + 1)^2 = 4$$

5. $15r^2 + r - 2 = 0$

$$r \in \left\{ -\frac{2}{5}, \frac{1}{3} \right\}$$

$$\left(r + \frac{1}{30} \right)^2 = \frac{121}{900}$$

10. $12c^2 + 4c - 56 = 0$

$$c \in \left\{ -\frac{7}{3}, 2 \right\}$$

$$\left(c + \frac{1}{6} \right)^2 = \frac{169}{36}$$