

Algebra 1 8.9

Factor perfect square trinomials

Solve equations involving perfect squares

Solve equations using square root property (SRP)

perfect square

zero product property

prime

square root property

whiteboards

speed dating and/or eggscellence

Whiteboards

9. $64y^2 - 48y + 18 = 9$
 $\quad \quad \quad -9 \quad -9$

$$64y^2 - 48y + 9 = 0$$

$$* \sqrt{(8y - 3)^2} = \sqrt{0}$$

$$\begin{array}{r} 8y - 3 \\ +3 \\ \hline \end{array} = \begin{array}{r} \pm 0 \\ +3 \end{array}$$

$$\begin{array}{r} 8y = 3 \\ \hline y = \frac{3}{8} \pm 0 \end{array}$$

10. $\sqrt{(z + 5)^2} = \sqrt{47}$

$$z + 5 = \pm 6.9$$
$$\begin{array}{r} -5 \\ -5 \end{array}$$

$$z = -5 \pm 6.9$$

$\nearrow -5 + 6.9 = 1.9$
 $\searrow -5 - 6.9 = -11.9$

What if it isn't a perfect square?

Examples 3-4 Solve each equation.

$$\sqrt{4x^2} = \sqrt{36}$$

$$\frac{2x}{2} = \pm \frac{6}{2}$$

$$x = \pm 3$$

$$x = 3$$

$$x = -3$$

$$8. 25a^2 - 40a = -16$$

$$+16 \quad +16$$

$$25a^2 - 40a + 16 = 0$$

$$\sqrt{(5a - 4)^2} = \sqrt{0}$$

$$5a - 4 = \pm 0$$

Possible shortcut: Can you write it as a perfect square?

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SRP

$$\begin{array}{r} 5a - 4 = \pm 0 \\ +4 \quad +4 \\ \hline 5a = 4 \\ \frac{5a}{5} = \frac{4}{5} \end{array} \quad a = \frac{4}{5}$$

Examples 3–4 Solve each equation.

34. $4m^2 - 24m + 36 = 0$

$$\sqrt{(2m - 6)^2} = \sqrt{0}$$

$$2m - 6 = 0$$

$$2m = 6$$

$$m = 3$$

35. $(y - 4)^2 = 7$

What if it isn't a perfect square?

38. $x^2 + 8x + 16 = 25$

39. $5x^2 - 60x = -180$

Speed dating

