

Example 2 Solve each equation by completing the square.

$$x^2 + 2x - 6 = 0$$

$$x^2 + 2x + 1 = 6 + 1$$

$$C = \frac{a}{2} = \left(\frac{1}{2}\right)^2 = 1$$

$$\sqrt{(x+1)^2} = \sqrt{7}$$

$$x+1 = \pm \sqrt{7}$$

$$x = -1 \pm \sqrt{7}$$

$$\{-1 + \sqrt{7}, -1 - \sqrt{7}\}$$

* radical that does not
have a perfect square
* when you have i

$$3x^2 + 8x = 2x - 9$$

$$-2x \quad -2x$$

$$3x^2 + 6x = -9$$

$$x^2 + 2x + 1 = -3 + 1$$

$$C = \frac{a}{2} = \left(\frac{1}{2}\right)^2 = 1$$

$$\sqrt{(x+1)^2} = \sqrt{-2}$$

$$x+1 = \pm \sqrt{-1} \cdot \sqrt{2}$$

$$x = -1 \pm i\sqrt{2}$$

$$4w(w-3) = 24$$