

# COMPLETING THE SQUARE

$$x^2 - 14x = 8$$

$$\left(\frac{-14}{2}\right)^2 = (-7)^2 = 49$$

$$x^2 - 14x + 49 = 8 + 49$$

$$\sqrt{(x-7)^2} = \sqrt{57}$$

$$x - 7 = \pm \sqrt{57}$$

$$x = 7 \pm \sqrt{57}$$

# COMPLETING THE SQUARE

$$x^2 - 10x = -9$$

$$\left(\frac{-10}{2}\right)^2 = (-5)^2 = 25$$

$$x^2 - 10x + 25 = -9 + 25$$

$$\sqrt{(x-5)^2} = \sqrt{16}$$

$$x-5 = \pm 4$$

$$x-5 = 4 \quad \text{or} \quad x-5 = -4$$

+5      +5                      +5      +5

$$x=9 \quad \text{or} \quad x=1$$

# COMPLETING THE SQUARE

$$x^2 + x = 30$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

$$x^2 + x + \frac{1}{4} = 30 + \frac{1}{4}$$

$$\sqrt{\left(x + \frac{1}{2}\right)^2} = \sqrt{30.25}$$

$$x + \frac{1}{2} = \pm \sqrt{30.25}$$

$$-\frac{1}{2} \quad -\frac{1}{2}$$

$$x = \frac{-1}{2} \pm \sqrt{30.25}$$

# COMPLETING THE SQUARE

$$2x^2 + 20x - 10 = 0$$

$+10 \quad +10$

$$\frac{2x^2 + 20x}{2} = \frac{10}{2}$$

$$x^2 + 10x = 5$$

$$\left(\frac{10}{2}\right)^2 = 5^2 = 25$$

$$x^2 + 10x + 25 = 5 + 25$$

$$\sqrt{(x+5)^2} = \sqrt{30}$$

$$x+5 = \pm \sqrt{30}$$

$-5 \quad -5$

$$x = -5 \pm \sqrt{30}$$