# EJERCICIOS

## Ecuaciones de segundo grado

**1** $x^2 - 5x + 6 = 0$

**2** $2x^2 - 7x + 3 = 0$

**3** $-x^2 + 7x - 10 = 0$

**4** $x^2 - 2x + 1 = 0$

**5** $x^2 + x + 1 = 0$

**6** $x^2 - 4x + 4 = 0$

**7** $2x - 3 = 1 - 2x + x^2$

**8** $x^2 + (7 - x)^2 = 25$

# Soluciones

**1**

$x^2 - 5x + 6 = 0$

$$x = \frac{5 \pm \sqrt{5^2 - 4 \cdot 6}}{2} = \frac{5 \pm \sqrt{25 - 24}}{2} = \frac{5 \pm \sqrt{1}}{2} = \frac{5 \pm 1}{2} = \begin{cases} x_1 = \frac{6}{2} = 3 \\ x_2 = \frac{4}{2} = 2 \end{cases}$$

**2**

$2x^2 - 7x + 3 = 0$

$$x = \frac{7 \pm \sqrt{7^2 - 4 \cdot 2 \cdot 3}}{4} = \frac{7 \pm \sqrt{49 - 24}}{4} = \frac{7 \pm \sqrt{25}}{4} = \frac{7 \pm 5}{4} = \begin{cases} x_1 = \frac{12}{4} = 3 \\ x_2 = \frac{2}{4} = \frac{1}{2} \end{cases}$$

**3**

$-x^2 + 7x - 10 = 0$

$$(-1) \cdot (-x^2 + 7x - 10) = (-1) \cdot 0$$

$$x^2 - 7x + 10 = 0$$

$$x = \frac{7 \pm \sqrt{7^2 - 4 \cdot 10}}{2} = \frac{7 \pm \sqrt{49 - 40}}{2} = \frac{7 \pm \sqrt{9}}{2} = \frac{7 \pm 3}{2} = \begin{cases} x_1 = \frac{10}{2} = 5 \\ x_2 = \frac{4}{2} = 2 \end{cases}$$

**4**

$x^2 - 2x + 1 = 0$

$$x = \frac{2 \pm \sqrt{2^2 - 4 \cdot 1}}{2} = \frac{2 \pm \sqrt{4 - 4}}{2} = \frac{2 \pm \sqrt{0}}{2} = \frac{2 \pm 0}{2} = \frac{2}{2} = 1$$

**5**

$x^2 + x + 1 = 0$

$$x = \frac{-1 \pm \sqrt{1^2 - 4}}{1} = \frac{1 \pm \sqrt{-3}}{1} \notin \mathbb{R}$$

**6**

$x^2 - 4x + 4 = 0$

$$x = \frac{4 \pm \sqrt{16 - 16}}{2} = \frac{4}{2} = 2$$

**7**

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

$$x^2 - 4x + 4 = 0$$

$$x = \frac{4 \pm \sqrt{16 - 16}}{2} = \frac{4}{2} = 2$$

**8**

$x^2 + (7 - x)^2 = 25$

- $x^2 + 49 - 14x + x^2 = 25$
- $2x^2 - 14x + 24 = 0$
- $x^2 - 7x + 12 = 0$
- $x = \frac{7 \pm \sqrt{49 - 48}}{2} = \frac{7 \pm 1}{2} = \begin{cases} x_1 = 4 \\ x_2 = 3 \end{cases}$