Ecuaciones Cuadráticas

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

① $x^2 + 5x + 6 = 0$

$$x = \frac{-5 \pm \sqrt{25 - 24}}{2}$$

$$x_1 = \frac{-5+1}{2} \qquad x_2 = \frac{-5-1}{2}$$

$$x_1 = -2 \qquad x_2 = -3$$

COMPROBACIÓN

- $(-2)^2 + 5(-2) + 6 = 0$
  $4 - 10 + 6 = 0 \Rightarrow 0 = 0$
- $(-3)^2 + 5(-3) + 6 = 0$
  $9 - 15 + 6 = 0 \Rightarrow 0 = 0$

② $x^2 - 3x - 4 = 0$

$$x = \frac{3 \pm \sqrt{9 + 16}}{2}$$

$$x_1 = \frac{3+5}{2} \qquad x_2 = \frac{3-5}{2}$$

$$x_1 = 4 \qquad x_2 = -1$$

COMPROBACIÓN

- $(4)^2 - 3(4) - 4 = 0$
  $16 - 12 - 4 = 0 \Rightarrow 0 = 0$
- $(-1)^2 - 3(-1) - 4 = 0$
  $1 + 3 - 4 = 0 \Rightarrow 0 = 0$

③ $x^2 + 4x + 3 = 0$

$$x = \frac{-4 \pm \sqrt{16 - 12}}{2}$$

$$x_1 = \frac{-4+2}{2} \qquad x_2 = \frac{-4-2}{2}$$

$$x_1 = -1 \qquad x_2 = -3$$

COMPROBACIÓN

- $(-1)^2 + 4(-1) + 3 = 0$
  $1 + 4 + 3 = 0 \Rightarrow 0 = 0$
- $(-3)^2 + 4(-3) + 3 = 0$
  $9 - 12 + 3 \Rightarrow 0 = 0$

④ $x^2 - 6x + 9 = 0$

$$x = \frac{6 \pm \sqrt{36 - 36}}{2}$$

$$x = \frac{6}{2} \qquad x = 3$$ — Raíz doble

COMPROBACIÓN

- $(3)^2 - 6(3) + 9 = 0$
  $9 - 18 + 9 = 0 \Rightarrow 0 = 0$

⑤ $x^2 + 7x + 12 = 0$

$$x = \frac{-7 \pm \sqrt{49 - 48}}{2}$$

$$x_1 = \frac{-7 \pm 1}{2} \qquad x_2 = \frac{-7-1}{2}$$

$$x_1 = -3 \qquad x_2 = -4$$

COMPROBACIÓN

- $(-3)^2 + 7(-3) + 12 = 0$
  $9 + 21 + 12 = 0 \Rightarrow 0 = 0$
- $(-4)^2 + 7(-4) + 12 = 0$
  $+16 + 28 + 12 = 0 \Rightarrow 0 = 0$