

## ECUACIONES IRRACIONALES

Problema 20:

Resolver

$$\sqrt{x^2 + x + 4} = 2 + \sqrt{x^2 - 2x + 1}$$

Solución Problema 20:

$$\sqrt{x^2 + x + 4} = 2 + \sqrt{x^2 - 2x + 1}$$

$$(\sqrt{x^2 + x + 4})^2 = (2 + \sqrt{x^2 - 2x + 1})^2$$

$$x^2 + x + 4 = 4 + x^2 - 2x + 1 + 4\sqrt{x^2 - 2x + 1}$$

$$3x - 1 = 4\sqrt{x^2 - 2x + 1}$$

$$(3x - 1)^2 = (4\sqrt{x^2 - 2x + 1})^2$$

$$9x^2 + 1 - 6x = 16(x^2 - 2x + 1)$$

$$9x^2 + 1 - 6x = 16x^2 - 32x + 16$$

$$7x^2 - 26x + 15 = 0$$

$$x = \frac{26 \pm \sqrt{26^2 - 4 \cdot 7 \cdot 15}}{2 \cdot 7} = \frac{26 \pm \sqrt{676 - 420}}{14} = \frac{26 \pm \sqrt{256}}{14} = \frac{26 \pm 16}{14}$$

$$x_1 = \frac{26 + 16}{14} = \frac{42}{14} = 3 \text{ solución válida}$$

$$x_2 = \frac{26 - 16}{14} = \frac{10}{14} = \frac{5}{7} \text{ solución válida}$$