ECUACIONES IRRACIONALES

Problema 24:

Resolver

$$\sqrt{2x + 2\sqrt{x^2 - 25}} = 4\sqrt{x - 5}$$

Solución Problema 24:

$$\sqrt{2x + 2\sqrt{x^2 - 25}} = 4\sqrt{x - 5}$$

$$\sqrt{2x + 2\sqrt{x^2 - 25}}^2 = 4\sqrt{x - 5}^2$$

$$2x + 2\sqrt{x^2 - 25} = 16(x - 5) = 16x - 80$$

$$2\sqrt{x^2 - 25} = 16x - 2x - 80 = 14x - 80$$

$$2\sqrt{x^2 - 25} = 14x - 80$$

$$\sqrt{x^2 - 25} = 7x - 40$$

$$\sqrt{x^2 - 25}^2 = (7x - 40)^2$$

$$x^2 - 25 = 49x^2 + 1600 - 560x$$

$$48x^2 - 560x + 1625 = 0$$

$$\mathrm{x} = \frac{560 \pm \sqrt{560^2 - 4\mathrm{x}48\mathrm{x}1625}}{2x48} = \frac{560 \pm \sqrt{313600 - 312000}}{96} =$$

$$\frac{560 \pm \sqrt{1600}}{96} = \frac{560 \pm 40}{96}$$

$$\boldsymbol{x_1} = \frac{560 + 40}{96} = \frac{600}{96} = \frac{25}{4} \textbf{ solución válida}$$

$$\boldsymbol{x_2} = \frac{560 - 40}{96} = \frac{520}{96} = \boldsymbol{\frac{65}{12}} \textbf{ solución no válida}$$