LOGARITMOS

Problema 82:

Resolver la siguiente ecuación

$$\frac{\log 2 + \log(11 - x^2)}{\log(5 - \mathrm{x})} = 2$$

Solución Problema 82:

$$\frac{\log 2 + \log(11 - x^2)}{\log(5 - \mathrm{x})} = 2$$

$$\frac{\log[2 \cdot (11 - x^2)]}{\log(5 - \mathrm{x})} = 2$$

$$\log[2 \cdot (11 - x^2)] = 2\log(5 - \mathrm{x})$$

$$\log[2 \cdot (11 - x^2)] = \log(5 - \mathrm{x})^2$$

$$[2 \cdot (11 - x^2)] = (5 - \mathrm{x})^2$$

$$22 - 2x^2 = 25 + x^2 - 10\mathrm{x}$$

$$3x^2 - 10\mathrm{x} + 3 = 0$$

$$x = \frac{10 \pm \sqrt{100 - 36}}{6} = \frac{10 \pm \sqrt{64}}{6} = \frac{10 \pm 8}{6}$$

$$x_1 = \frac{10 + 8}{6} = 3 \quad solución\ válida$$

$$x_2 = \frac{10 - 8}{6} = \frac{1}{3} \quad solución\ válida$$