

## Lineare Gleichungen mit einer Variablen Aufgabe 49

Bestimmen Sie x aus:

$$\frac{2x + 1}{x - 1} + \frac{2x + 4}{1 - x} + \frac{2x - 9}{x^2 - 1} = \frac{4 - 8x}{1 - x^2}$$

$$\frac{2x + 1}{x - 1} + \frac{2x + 4}{-(x - 1)} + \frac{2x - 9}{x^2 - 1} = \frac{4 - 8x}{-(x^2 - 1)}$$

$$\frac{2x + 1}{x - 1} - \frac{2x + 4}{x - 1} + \frac{2x - 9}{x^2 - 1} = -\frac{4 - 8x}{x^2 - 1}$$

$$x - 1 = x - 1$$

$$x^2 - 1 = (x - 1)(x + 1)$$

$$\text{Hauptnenner} = (x - 1)(x + 1)$$

$$\frac{2x + 1}{x - 1} - \frac{2x + 4}{x - 1} + \frac{2x - 9}{x^2 - 1} = -\frac{4 - 8x}{x^2 - 1} \quad | \cdot (x - 1)(x + 1)$$

$$(x + 1)(2x + 1) - (x + 1)(2x + 4) + 2x - 9 = -(4 - 8x)$$

$$2x^2 + 2x + x + 1 - 2x^2 - 2x - 4x - 4 + 2x - 9 = -4 + 8x$$

$$-x - 12 = -4 + 8x \quad | + x$$

$$-12 = -4 + 9x \quad | + 4$$

$$-8 = 9x \quad | : 9$$

$$x = -\frac{8}{9}$$