COMBINATORIA

Problema 14:

Resolver la ecuación:

$$V_{x,3} + V_{x-1,3} = 36(x-1)$$

Solución Problema 14:

$$V_{x,3} + V_{x-1,3} = 36(x-1) \; ecuación \; 1$$

La podemos expresar como:

$$x\cancel{(x-1)}(x-2) + \cancel{(x-1)}(x-2)(x-3) = 36\cancel{(x-1)}$$

$$x(x-2) + (x-2)(x-3) = 36$$

$$x^2 - 2x + x^2 - 2x - 3x + 6 = 36$$

$$2x^2 - 7x - 30 = 0$$

$$\text{x} = \frac{7 \pm \sqrt{7^2 + 4\text{x}2\text{x}30}}{4} = \frac{7 \pm \sqrt{49 + 240}}{4} = \frac{7 \pm \sqrt{289}}{4} = \frac{7 \pm 17}{4}$$

$$\boldsymbol{x_1} = \frac{7+17}{4} = \frac{24}{4} = \boldsymbol{6} \; \boldsymbol{soluci}ón \; \boldsymbol{v}álida$$

$$\boldsymbol{x_2} = \frac{7-17}{4} = \frac{-10}{4} = \frac{\boldsymbol{-5}}{\boldsymbol{2}} \; \boldsymbol{soluci}ón \; \boldsymbol{v}álida$$