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c_n - ciąg n -elementów

α_n - ciąg n -elementów ≥ 0 na początku

β_n - ciąg n -elementów ≥ 1 na początku

γ_n - ciąg n -elementów ≥ 2 na początku

$$c_n = \alpha_n + \beta_n + \gamma_n = 2\alpha_n + \gamma_n$$

$\alpha_n = \beta_n$

$$c_{n+1} = 2\alpha_n + 2\beta_n + \gamma_n = 2c_n + \gamma_n = 2c_n + c_{n-1}$$

$\gamma_n = c_{n-1}$

Anihilator: $(E^2 - 2E - 1) = (E - (1 - \sqrt{2}))(E - (1 + \sqrt{2}))$

$$c_n = A(1 - \sqrt{2})^n + B(1 + \sqrt{2})^n$$

$$\left. \begin{array}{l} c_0 = 1 = A + B \\ c_1 = 3 = A(1 - \sqrt{2}) + B(1 + \sqrt{2}) \end{array} \right\} \Rightarrow c_n = \frac{(1 - \sqrt{2})^{n+1}}{2} + \frac{(1 + \sqrt{2})^{n+1}}{2}$$