Aligatory

- $a_{n+2} = 2a_{n+1} - a_n + n3^n - 1$

$$E^2\langle a_n\rangle = 2\langle a_{n+1}\rangle - \langle a_n\rangle + \langle n3^n\rangle - \langle -1\rangle$$

$$E^2\langle a_n\rangle - 2\langle a_{n+1}\rangle + \langle a_n\rangle - \langle n3^n\rangle + \langle -1\rangle = 0$$

$$E^2\langle a_n\rangle - 2E\langle a_n\rangle + \langle a_n\rangle - \langle n3^n\rangle + \langle -1\rangle = 0$$

$$\langle a_n\rangle(E^2-2E+1) - \langle n3^n\rangle + \langle -1\rangle = 0$$

Anihilator: $(E^2-2E+1)(E-3)^2(E-1) = (E-3)^2(E-1)^3$

$$\left.\begin{array}{l}(E-1)^3 \Rightarrow \alpha_0 + \alpha_1 n + \alpha_2 n^2 \\ (E-3)^2 \Rightarrow 3^n(\beta_0 + \beta_1 n)\end{array}\right\} \Rightarrow$$

$$\boxed{\text{Postać ogólna: } \alpha_0 + \alpha_1 n + \alpha_2 n^2 + 3^n(\beta_0 + \beta_1 n)}$$

Sposób 2?

$$\left.\begin{array}{r}(E-1)(E-3) = \alpha_0 + 3^n\beta_0 \\ (E-1)(E-3) = \alpha_1 + 3^n\beta_1 \\ (E-1) = \alpha_2\end{array}\right\} \Rightarrow$$

?

- $a_{n+2} = \frac{3}{2}a_{n+1} - \frac{1}{2}a_n + \frac{n}{2^n}$

$$E^2\langle a_n\rangle - \frac{3}{2}E\langle a_n\rangle + \frac{1}{2}\langle a_n\rangle - \frac{n}{2^n} = 0$$

$$\langle a_n\rangle\left(E^2 - \frac{3}{2}E + \frac{1}{2}\right) - n\cdot\left(\frac{1}{2}\right)^n$$

Anihilator: $(E-1)(E-\frac{1}{2})^3$

$$\left.\begin{array}{l}(E-1) = \alpha_0 \\ (E-\frac{1}{2})^3 = \beta_0 + n\beta_1 + n^2\beta_2\end{array}\right\} \Rightarrow \alpha_0 + \beta_0 + n\beta_1 + n^2\beta_2$$

- $a_{n+2} = 5a_{n+1} - 6a_n + \frac{\binom{n}{2}}{2^n}$

$$E^2\langle a_n\rangle - 5\cdot E\langle a_n\rangle + 6\langle a_n\rangle - \frac{n(n-1)}{2^{n+1}} = 0$$

można 0 dać

$$\langle a_n\rangle(E^2-5E+6) \underbrace{-\frac{1}{2}n^2\left(\frac{1}{2}\right)^n - \frac{1}{2}n\left(\frac{1}{2}\right)^n + 0n^0\left(\frac{1}{2}\right)^n} = 0$$

Anihilator: $(E^2-5E+6)(E-\frac{1}{2})^3 = (E-2)(E-3)(E-\frac{1}{2})^3$

$$(E-2) \Rightarrow \alpha_0 2^n$$

$$(E-3) \Rightarrow \beta_0 3^n$$

$$(E-\tfrac{1}{2})^3 \Rightarrow \sum_{i=0}^{2} \gamma_i\cdot\left(\frac{1}{2}\right)^n\cdot n^i$$