MDM Lista 8

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ZAD. 2.

$$A(x) = \sum_{n=0}^{\infty} a_n x^n = \sum_{n=0}^{\infty} a_{2n} x^{2n} + \sum_{n=0}^{\infty} a_{2n+1} x^{2n+1}$$

$$A(x) + A(-x) = \sum_{n=0}^{\infty} a_{2n} x^{2n} + \sum_{n=0}^{\infty} a_{2n+1} x^{2n+1} + \sum_{n=0}^{\infty} a_{2n} (-x)^{2n} + \sum_{n=0}^{\infty} a_{2n+1} (-x)^{2n+1} =$$

$$= \sum_{n=0}^{\infty} a_{2n} x^{2n} + \sum_{n=0}^{\infty} a_{2n+1} x^{2n+1} + \sum_{n=0}^{\infty} a_{2n} x^{2n} - \sum_{n=0}^{\infty} a_{2n+1} x^{2n+1} =$$

$$= 2 \sum_{n=0}^{\infty} a_{2n} x^{2n}$$

$$\sum_{n=0}^{\infty} a_{2n} x^{2n} = \frac{1}{2}(A(x) + A(-x))$$

$$A(x) = \sum_{n=0}^{\infty} a_n x^n = \sum_{n=0}^{\infty} a_{3n} x^{3n} + \sum_{n=0}^{\infty} a_{3n+1} x^{3n+1} + \sum_{n=0}^{\infty} a_{3n+2} x^{3n+2} =$$

$$= \sum_{n=0}^{\infty} a_{3n} (x^3)^n + \sum_{n=0}^{\infty} a_{3n+1} (x^3)^n x + \sum_{n=0}^{\infty} a_{3n+2} (x^3)^n x^2$$

ZAD. 3.

$$a_n = \sum_{i=0}^{\infty} F_i F_{n-i}$$

$$f(x) = \sum_{n=0}^{\infty} a_n x^n = \sum_{n=0}^{\infty} x^n \sum_{i=1}^{n} F_i F_{n-i}$$