Essa maluquice abaixo levou a elevar série à enésima

$$f(x)=ax+b;f(f(x))=-x\Rightarrow a^2x+ab+b=-x$$

$$\begin{cases} a^2=-1\Rightarrow a=\pm i \\ \pm ib+b=0\Rightarrow b=0 \end{cases}\Rightarrow f(x)=\pm ix;f^{-1}(x)=\frac{x}{\pm i}=\mp ix\Rightarrow f^{-1}(-x)=\mp i(-x)\therefore f^{-1}(-x)=f(x)$$

$$f^{-1}(-x)=f(x)=y=\sum\frac{f^{(n)}(0)}{n!}x^n$$

$$(f\circ f)(x)=-x$$

$$f\left(\sum\frac{f^{(n)}(0)}{n!}x^n\right)=\sum\frac{f^{(n)}(0)}{n!}\left(\sum\frac{f^{(n)}(0)}{n!}x^n\right)^n=-x$$

$$\left(\sum a_n\right)^2=\sum_n a_n^2+2\sum_i\left(a_i\sum_{j>i}a_j\right)$$

$$\left(\sum a_n\right)^3=\sum_n a_n^3+3\sum_i\left(a_i^2\sum_{j\neq i}a_j\right)+6\sum_i\left(a_i\sum_{j>i}\left(a_j\sum_{k>j}a_k\right)\right)$$

$$\left(\sum a_n\right)^4=\sum a_n^4+P_4^{3,1}\sum_{n_1}\sum_{n_2\neq n_1}a_{n_1}^3a_{n_2}+\underbrace{P_4^{2,2}a_{n_1}^2a_{n_2}^2}_{>}+\underbrace{P_4^{2,1,1}a_{n_1}^2a_{n_2}a_{n_3}}_{\neq,>}+\underbrace{P_4a_{n_1}a_{n_2}a_{n_3}a_{n_4}}_{>,>,>}$$

4,31,22,211,1111

5,41,32,311,221,2111,11111

6,51,42,411,33,321,3111,222,2211,21111

$$5+1=4+\underset{(11)}{2}=3+\underset{\begin{pmatrix}21\\111\end{pmatrix}}{3}=2+\underset{\begin{pmatrix}22\\211\\1111\end{pmatrix}}{4}=1+\underset{(11111)}{5}$$