Баллы 4,00/4,00
Оценка **10,00** из 10,00 (**100**%)

Вопрос **1**
Верно
Баллов: 1,00 из 1,00

Give the generating function for the sequence

$a_n = 2^n + 3^n$

in closed form.

Important note for this question and all the following ones: to check your answer, the system compares it to a list of recognized answers (it sounds ridiculous when the AI is a chess champion and writes essays, but that's how it is). So you have to respect a few guidelines to make sure it falls within the limited range of recognized answers:

- **Please use the variable *q***
- **Use * as multiplication symbol: 3*q and not 3q, (1+q)*(1-2*q) and not (1+q)(1-2*q)**
- **Order monoms by increasing powers : 1+4*q^2 and not 4*q^2+1**
- **Do not put spacing: 3+2*q and not 3 + 2*q**

Example: (1+4*q^2)/(1-q+5*q^3)

Ответ: (2-5*q)/(1-5*q+6*q^2) ✔

Вопрос **2**
Верно
Баллов: 1,00 из 1,00

Let f_n be the Fibonacci sequence ($f_0 = f_1 = 1$).

Find the generating function for the sequence

$f_0, 0, f_2, 0, f_4, 0, \ldots$

Ответ: (1-q^2)/(1-3*q^2+q^4) ✔

Вопрос **3**
Верно
Баллов: 1,00 из 1,00

The sequence is given by the recurrence relation

$a_n = a_{n-1} - a_{n-2} + a_{n-3} - a_{n-4},$

$a_0 = a_1 = 1, a_2 = a_3 = 3.$

Find the generating function for a_n in closed form.

Ответ: (1+3*q^2)/(1-q+q^2-q^3+q^4) ✔

Вопрос **4**
Верно
Баллов: 1,00 из 1,00

The sequence a_n is given by the recurrence relation $a_n = 2a_{n-1} + 3$, with $a_0 = 1$.

Find the generating function for a_n in closed form.

Ответ: (1+2*q)/(1-3*q+2*q^2) ✔