Fibonacci, again!

*“The simplest yet most elegant thing about the sequence is you subtract any two adjacent elements from the next, and voila! You get zero. And that is all there is to it.” - Numberphile*

The sequence starts as below,

The polynomial we get when doing the dot product (if we could call it that) between the Fibonacci sequence and , let’s call it .

For instance,

Find,

,for a given n, N, M

Input:

n – number of terms in the polynomial

N - limit of the sum M – modulo value

Constraints:

; Note that upper limit can be given in the scientific notation   
 ex: 1e10)

(1 <= N <= 100)

Output:

The above sum

Sample case 1:

input:

10

1

1000

output:

143

explanation:

note: the final test case will have the following input,

1e15

100

15!

And will carry 70% of the marks.

Hint1: Can the polynomial be manipulated?

Hint2: