Problem G. Chiaki Sequence Revisited

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	256 mebibytes

Chiaki is interested in an infinite sequence $a_1, a_2, a_3, ...$, which is defined as follows:

$$a_n = \begin{cases} 1 & n = 1, 2 \\ a_{n-a_{n-1}} + a_{n-1-a_{n-2}} & n \geq 3 \end{cases}$$

Chiaki would like to know the sum of the first n terms of the sequence, i.e. $\sum_{i=1}^{n} a_i$. As this number may be very large, Chiaki is only interested in its remainder modulo $(10^9 + 7)$.

Input

There are multiple test cases. The first line of input contains an integer T $(1 \leq T \leq 10^5)$, indicating the number of test cases. For each test case:

The first line contains an integer n $(1 \leq n \leq 10^{18})$.

Output

For each test case, output an integer denoting the answer.

Example

standard input	standard output
10	1
1	2
2	4
3	6
4	9
5	13
6	17
7	21
8	26
9	32
10	