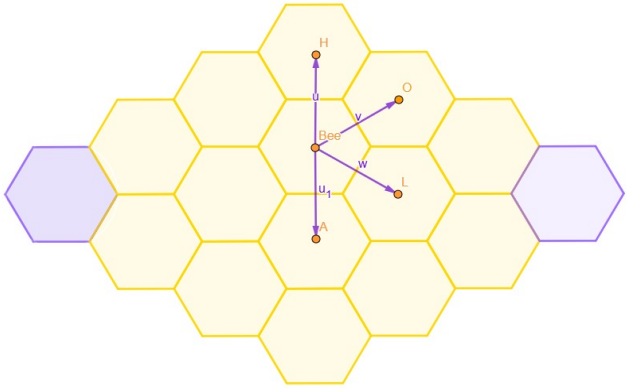
New Bee in Hive

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Now you're no longer a unit of YorHa, you're a bee (bzz! bzz!). Right now you are collecting pollen (bzz!).

You are returning to the hive, which has a peculiar shape, that can be seen as follows (bzz!).



A Hive of size 3 (bzz! bzz! bzz!).

Where the purple hexagon on the left is the entrance, and the purple hexagon on the right is the pollen storage (bzz!). To move within it, you can only make the movements described in the image: up, down, lower right, and upper right (bzz!).

While carrying pollen, you stopped to think: Why am I carrying pollen? Is it to impress my companions? Do I seek the queen bee's recognition for a moment? Is collecting pollen what makes me a bee? Is being a bee enough to give my existence meaning? Before you could understand your thoughts, your bee friend, Tilin, arrived (bzz! bzz!). She asked you something meaningless, but it seemed better than trying to answer your own questions (bzz!).

How many ways exist from the entrance to the storage area without passing through the same hexagon more than once? (bzz!).

Input

The first and unique line of the input will contain one integer, N ($1 \leq N \leq 10^6$) – the number of increments in the Hive.

Output

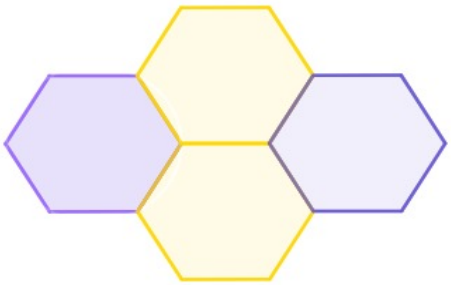
Print one integer — the number of ways, modulo $10^9 + 7$.

Examples

standard input	standard output
1	4
3	2304
100	516354452

Note

A Hive of size 1 (bzz!).



A Hive of size 2 (bzz! bzz!).