

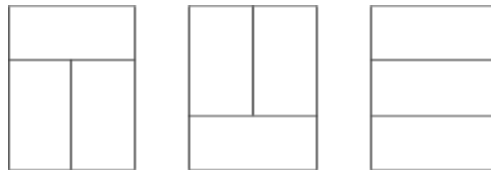
Problem 6: Tiling



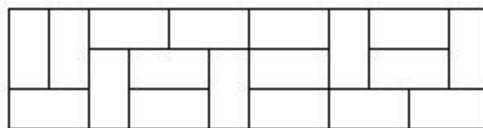
Domino tiles (or dominoes) are rectangular pieces of size 2×1 . Each square contains a number from 1 to 6. These pieces are used to play a game but in this problem we are going to use them for something different.

We can build rectangles of certain width W and height 3 using dominoes. We are wondering how many ways of creating such rectangles are possible.

Below you can see the three possible ways of creating a rectangle of width 2 and height 3.



As you see there are many ways of tiling the rectangle. For example this is a possible solution with width 12:



Your task is to write a program that computes the number of possible ways of tiling a rectangle of width W and height 3.

Input

A single line with an integer W . The width of the rectangle.
The value of W will be between 1 and 1000.





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Output

A single line with the number of possible ways. The numbers can be large so print the solution modulo 1000000007 ($10^9 + 7$).

Examples

Input 2	Output 3
Input 8	Output 153
Input 30	Output 299303201
Input 3	Output 0
Input 56	Output 485646032

In the last test case, the actual result is 8155103542731753 by we have to print it modulo $10^9 + 7$.

