

Floor Tiling

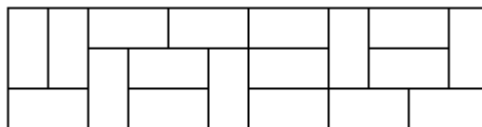
Time limit: 2 sec.

Memory limit: 512MB

Description

Junhee thought it would be better to decorate the floor on corridors in ASTU as 3 by n grid rather than as 2 by n grid. Still, he is going to use 2 by 1 tiles. When the corridor is divided into 3 by n grid, n should be even number to fill the grid with 2 by 1 tiles completely. Thus, n is guaranteed to be an even number.

In how many ways can he tile a 3 by n grid with 2 by 1 tiles? Because the answer is big, find the number of tiling modulo 1,000,000,007.



Here is a sample tiling of a 3 by 12 grid.

Input

The first line contains an integer n, the length of grid. ($2 \leq n \leq 100,000$, n is even)

Output

Print the number of different ways he can tile the 3 by n grid. Because the answer is big, find the number of tiling modulo

1,000,000,007.

Sample I/O

Input(s)	Output(s)
2	3
8	153