

Time Limit: 2000ms  
Memory Limit: 256MB

## H - Bracket Sequence

Submissions

Submit

Given an integer  $n$ , find the number of balanced bracket sequences of length  $n$ , that have the sequence " $((()))$ " as a subarray.

A sequence of brackets is called balanced if one can turn it into a valid math expression by adding characters '+' and '1'. For example, sequences " $((()))$ ", " $()$ ", and " $((()()))$ " are balanced, while " $()$ ", " $((()$ ", and " $((()))$ " are not.

Print the answer ( $\text{mod } 10^9 + 7$ ).

### Input

The input is made up of one line containing an integer  $n$  ( $1 \leq n \leq 1000$ ).

### Output

Print a single integer the answer to the problem.

### Samples

Input	Output
6	1
8	4