

Floor Tilings

Timelimit: 2 sec

Problem description

You have two types of tiles. A quadratic 2×2 -tile and a rectangular 2×1 -tile. Tiles can be rotated, but this makes no difference for the quadratic tile.

How many ways are there to tile a floor of size $2 \times n$? For example, if $n = 1$ there is only one possibility, but for $n = 2$ there are already three.

Input

A number n ($1 \leq n \leq 10^8$), the length of the $2 \times n$ floor.

Output

The number of ways to tile an $2 \times n$ -floor. As these number are very big, give only the result modulo 2147483489.

Sample input/output

Input	Output
3	5