Fibonacci

Input file:	`standard input`
Output file:	`standard output`
C++ time limit:	2 seconds
Memory limit:	64 megabytes

From the beginning of time, 1337 hackers have calculated Fibonacci numbers just because they can. Now it is your turn.

The Fibonacci numbers are defined by $F_0 = 0$, $F_1 = 1$ and $F_n = F_{n-1} + F_{n-2}$ for $n > 1$. The first few Fibonacci numbers starting from F_0 are $0, 1, 1, 2, 3, 5, \ldots$.

Given an integer N, your task is to output the integer F_N modulo $10^9 + 7$ (that is, the remainder when divided by $10^9 + 7$)

Input

A single integer N.

Output

The integer F_N modulo $10^9 + 7$.

Scoring

Subtask 1 (5 points): $0 \leq N \leq 10$

Subtask 2 (10 points): $0 \leq N \leq 40$

Subtask 3 (15 points): $0 \leq N \leq 80$

Subtask 4 (15 points): $0 \leq N \leq 1\,000$

Subtask 5 (50 points): $0 \leq N \leq 1\,000\,000$

Subtask 6 (5 points): $0 \leq N \leq 10^{18}$

Hint for the last subtask:
The following two identities may be useful: $F_{2n-1} = F_n^2 + F_{n-1}^2$, $F_{2n} = (F_{n-1} + F_{n+1})F_n$

Examples

standard input	standard output
6	8
8	21