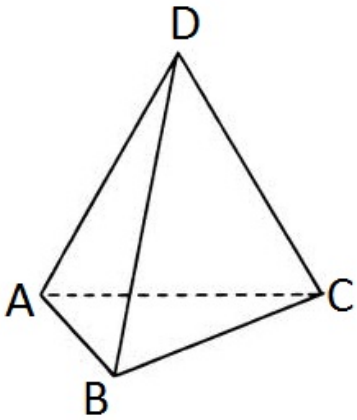
# E. Tetrahedron

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a tetrahedron. Let's mark its vertices with letters $A$, $B$, $C$ and $D$ correspondingly.




An ant is standing in the vertex $D$ of the tetrahedron. The ant is quite active and he wouldn't stay idle. At each moment of time he makes a step from one vertex to another one along some edge of the tetrahedron. The ant just can't stand on one place.

You do not have to do much to solve the problem: your task is to count the number of ways in which the ant can go from the initial vertex $D$ to itself in exactly $n$ steps. In other words, you are asked to find out the number of different cyclic paths with the length of $n$ from vertex $D$ to itself. As the number can be quite large, you should print it modulo $1000000007$ $(10^9 + 7)$.

## Input

The first line contains the only integer $n$ $(1 \le n \le 10^7)$ — the required length of the cyclic path.

## Output

Print the only integer — the required number of ways modulo $1000000007$ $(10^9 + 7)$.

### Examples

| input | Copy |
|---|---|
| 2 | |

| output | Copy |
|---|---|
| 3 | |

| input | Copy |
|---|---|
| 4 | |

## → Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

**Codeforces Round #113 (Div. 2)**

**Finished**

## → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

## → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

## → Problem tags

dp math matrices *1500

No tag edit access

## → Contest materials

- Announcement
- Tutorial

output

```
21
```

### Note

The required paths in the first sample are:

- $D - A - D$
- $D - B - D$
- $D - C - D$

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