PRACTICE   COMPETE   JOBS   LEADERBOARD   Search   daniel_hocking ⌄
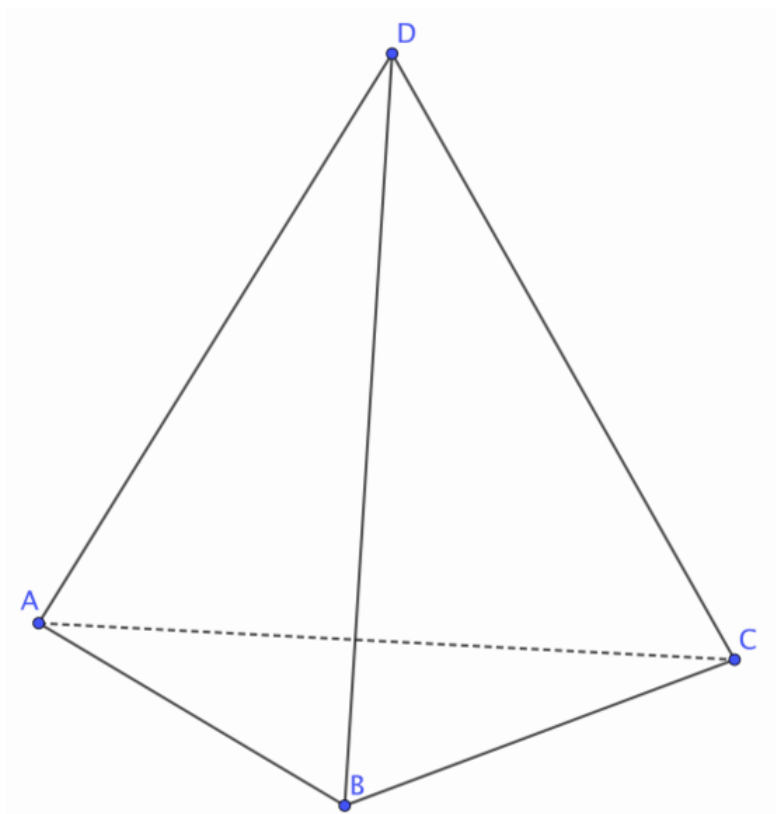
Tetrahedron 1   🔒 locked

by amrry

Problem	Submissions	Leaderboard	Discussions

There is an ant standing at vertex D of some tetrahedron. Let's label the other three vertices A, B and C, like so:

The ant doesn't like to stand still. At each moment in time the ant moves from one vertex to another, along some edge of the tetrahedron. The ant cannot stand on one place (vertex).

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. The number of paths can be quite large, print it modulo $10^9 + 7$.

Input Format

On one line a single integer will be given: n

Constraints

$1 \leq n \leq 10^7$

Output Format

Output the number of cyclical paths starting from vertex D to itself, modulo $10^9 + 7$.

Sample Input 0

```
2
```

Sample Output 0

```
3
```

Explanation 0

For the first example, we have the following three paths:

- $D \to A \to D$

- $D \to B \to D$

- $D \to C \to D$

Sample Input 1

```
4
```

Sample Output 1

```
21
```

Explanation 1

For the second example, two of the 21 paths are $D \to A \to B \to C \to D$ and $D \to A \to D \to A \to D$.

Submissions: 43
Max Score: 30
Difficulty: Medium

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More

Current Buffer (saved locally, editable)   Python 3 ⌄

```
1
```

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