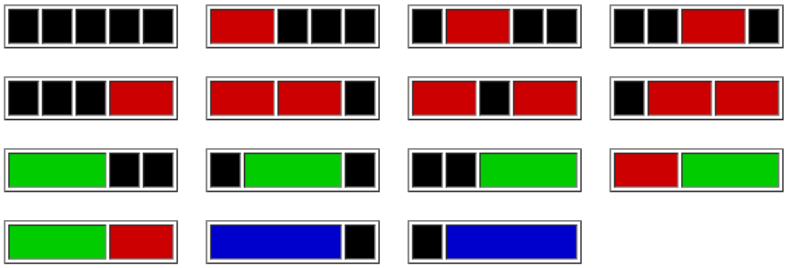
Project Euler #117: Red, green, and blue tiles

This problem is a programming version of Problem 117 from projecteuler.net

Using a combination of black square tiles and oblong tiles chosen from: red tiles measuring two units, green tiles measuring three units, and blue tiles measuring four units, it is possible to tile a row measuring five units in length in exactly fifteen different ways.



How many ways can a row measuring n units in length be tiled?

As the answer can be extremely large, print it modulo $10^9 + 7$.

Input Format

First line contains an integer T denoting the number of test cases.
Each of the following T lines contain one integer n.

Constraints
$1 \leq T \leq 1000$
$1 \leq n \leq 10^{18}$

Output Format

For each of T test cases print one line containing a single integer - the answer to a problem modulo $10^9 + 7$.

Sample Input

```
1
5
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Sample Output

```
15
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