

Given a full bipartite graph, such that the number of vertices on both sides of the graph is exactly the same. We want to color each edge into three colors: red, blue, or green, such any two red edges do not share the same vertex, while any two blue edges do not share the same. Calculate the number of such colorings!

## Input

A number of test cases ( $\leq 1000$ ), one per line, each with  $N$  ( $0 \leq N \leq 10000000$ ), which is the number of vertices on each side of the graph (a total of  $2 * N$  vertices).

## Output

For each test case, output the answer on one line, *modulo* 1000000007.

## Sample Input

```
1
2
```

## Sample Output

```
3
35
```