13223   Graph Colorings

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 (≤ 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
```