Problem G: Graph Colorings
Time Limit: 5 seconds

Description

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 of inputs (≤**1000**), 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 input, output the answer on one line, modulo **1000000007**.

Sample Input
1
2

Sample Output
3
35