

Problem J: Just More Permutations
Time Limit: 5 seconds

Description

Let $\lfloor x \rfloor$ be the floor of x . Count the number of permutations (a_1, a_2, \dots, a_n) of $(1, 2, \dots, n)$ such that

$$|a_1 - 1| + |a_2 - 2| \dots + |a_n - n| = \lfloor n^2 / 3 \rfloor$$

Input

A number of of inputs (≤ 1000), each start with the number of value of integer n ($1 \leq n \leq 1000000$).

Output

Output the number of permutations modulo **1000000007**.

Sample Input

1
5

Sample Output

1
35