Problem J: Count these Permutations
Time Limit: 4 seconds

Description

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

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

Input

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

Output

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

Sample Input

1
2
3

Sample Output

1
1
3