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

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

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
```