

13204 Count these Permutations

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

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

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
2
3
```

Sample Output

```
1
1
3
```