Problem H. Summing the N series

OS Linux

There is a sequence whose n^{th} term is

$$T_n = n^2 - (n-1)^2$$

Evaluate the series

$$S_n = T_1 + T_2 + T_3 + \cdots + T_n$$

Find $S_n \bmod (10^9 + 7)$.

Example

$n = 3$

The series is $1^2 - 0^2 + 2^2 - 1^2 + 3^2 - 2^2 = 1 + 3 + 5 = 9$.

Function Description

Complete the *summingSeries* function in the editor below.

summingSeries has the following parameter(s):

- *int n:* the inclusive limit of the range to sum

Returns

- *int:* the sum of the sequence, modulo $(10^9 + 7)$

Input Format

The first line of input contains t, the number of test cases.
Each test case consists of one line containing a single integer n.

Constraints

- $1 \leq t \leq 10$
- $1 \leq n \leq 10^{16}$

Sample Input 0

2

2

1

Sample Output 0

4

1

Explanation 0

Case 1: We have $4 = 1 + 3$

Case 2: We have $1 = 1$