

# A recurrence relation

Our task is to print some terms of the sequence defined by :

- $u_0 = 0$  ;
- $u_1 = 1$  ;
- for  $n \geq 0$ ,  $u_{n+2} = 5u_{n+1}^2 - 3u_n$ .

## Input

The first line of the input consist of a single integer number  $t$  which determines the number of tests.

In each of next  $t$  lines there is a single integer number  $n$ .

## Constraints

- $0 < t \leq 30\,000$
- $0 < n < 1\,000\,000$

## Output

Print  $u_n$  modulo  $1\,000\,000\,007$

## Example

**Input:**

3  
2  
3  
10

**Output:**

5  
122  
360914800