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Data Structure & Algorithms Programme   EXAM DATE **26 MAY 2019**   Last date to register is **12ᵗʰ May 2019**   KNOW MORE

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Reduce to One   Problem Code: **REDONE**   Submit (/MAY19B/submit/REDONE)

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Read problem statements in Hindi (http://www.codechef.com /download/translated/MAY19/hindi/REDONE.pdf), Bengali (http://www.codechef.com/download/translated/MAY19/bengali /REDONE.pdf), Mandarin Chinese (http://www.codechef.com /download/translated/MAY19/mandarin/REDONE.pdf), Russian (http://www.codechef.com/download/translated/MAY19/russian /REDONE.pdf), and Vietnamese (http://www.codechef.com /download/translated/MAY19/vietnamese/REDONE.pdf) as well.

You have become good friends with Chef. Right now, Chef is busy in the kitchen, so he asked you to solve a problem for him.

Consider a list of integers L. Initially, L contains the integers 1 through N, each of them exactly once (but it may contain multiple copies of some integers later). The order of elements in L is not important. You should perform the following operation $N - 1$ times:

- Choose two elements of the list, let's denote them by X and Y. These two elements may be equal.
- Erase the chosen elements from L.
- Append the number $X + Y + X \cdot Y$ to L.

At the end, L contains exactly one integer. Find the maximum possible value of this integer. Since the answer may be large, compute it modulo $1,000,000,007$ $(10^9 + 7)$.

Input

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first and only line of each test case contains a single integer N.

Output

For each test case, print a single line containing one integer — the maximum possible value of the final number in the list modulo $10^9 + 7$.

Constraints

- $1 \le T \le 100,000$
- $1 \le N \le 1,000,000$

Subtasks

Subtask #1 (20 points): $1 \le T, N \le 25$

Subtask #2 (80 points): original constraints

Example Input

```
3
1
2
4
```

Example Output

```
1
5
119
```

Explanation

Example case 1: $L = [1]$

Example case 2: $L = [1, 2] \to [1 + 2 + 1 \cdot 2]$

Example case 3: $L = [\mathbf{1}, 2, 3, \mathbf{4}] \to [\mathbf{2}, 3, \mathbf{9}] \to [3, 29] \to [119]$. The chosen elements in each step are in bold.

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Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	C, CPP14, JAVA, PYTH, PYTH 3.6, PYPY, CS2, PAS fpc, PAS gpc, RUBY, PHP, GO, NODEJS, HASK, rust, SCALA, swift, D, PERL, FORT, WSPC, ADA, CAML, ICK, BF, ASM, CLPS, PRLG, ICON, SCM qobi, PIKE, ST, NICE, LUA, BASH, NEM, LISP sbcl, LISP clisp, SCM guile, JS, ERL, TCL, kotlin, PERL6, TEXT, SCM chicken, PYP3, CLOJ, R, COB, FS

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