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(CODECHEF Certified) Data Structure & Algorithms Programme (CCDSAP)

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Count Permutations | Problem Code: CPERM









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Given N, count how many permutations of [1, 2, 3, ..., N] satisfy the following property.

Let P₁, P₂, ..., P_N denote the permutation. The property we want to satisfy is that there exists an i between 2 and n-1 (inclusive) such that

- $P_i > P_{i+1} \forall i \leq j \leq N-1$.
- P_j > P_{j-1} ∀ 2 ≤ j ≤ i.

Input

First line contains T, the number of test cases. Each test case consists of N in one line.

Output

For each test case, output the answer modulo 109+7.

Constraints

- $1 \le T \le 100$
- $1 \le N \le 10^9$

Subtasks

- Subtask #1(40 points): 1 ≤ N ≤ 1000
- Subtask #2(60 points): original constraints

Example

Input:

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Explanation

Test case 1:

No permutation satisfies.

Test case 2:

Permutations [1, 3, 2] and [2, 3, 1] satisfy the property.

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Editorial: http://discuss.codechef.com/problems/CPERM

Tags: combinatorics, darkshadows, easy, fast-expo, nov16

Date Added: 18-04-2014

Time Limit: 1 secs

Source Limit: 50000 Bytes

Languages: C, CPP14, JAVA, PYTH, PYTH 3.5, CS2, PAS fpc, PAS gpc, RUBY,

PHP, GO, NODEJS, HASK, SCALA, 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, PERL6, TEXT, CLOJ, FS

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CodeChef was created as a platform to help programmers make it big in the world of algorithms, **computer programming** and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and another smaller programming challenge in the middle of the month. We also aim to have training sessions and discussions related to **algorithms**, **binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

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Try your hand at one of our many practice problems and submit your solution in a language of your choice. Our **programming contest** judge accepts solutions in over 35+ programming languages. Preparing for coding contests were never this much fun! Receive points, and move up through the CodeChef ranks. Use our practice section to better prepare yourself for the multiple **programming challenges** that take place through-out the month on CodeChef.

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