Alice and the "Super Factorial Problem"

Alice recently learned Factorization in Combinatorics. Bob, who is proficient in Combinatorial Mathematics, challenged Alice to solve the Super Factorial Problem. In this challenge, Bob gives Alice an Integer N, Alice has to find the number of ways N can be split into two distinct factors a and b such that a and b are Co-Primes. Listening to the statement, Alice replied it is easy to do so. But then Bob added, Alice has to find the number of unordered pairs (a, b), $a \neq b$ such that $a \times b = N!$ (factorial) and (a, b) is a pair of Co-Primes.

After hearing to the "Super Factorial Problem", Alice is seeking for your help. Help Alice solve the problem.

Formally, you are given an Integer N, find the number of ways $N!$ can be split into two distinct factors a and b such that a and b are Co-Primes.

Since the answer could be very large, compute it modulo $10^9 + 7$.

Input Format

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.

Constraints

$1 \leq T \leq 10^6$

$1 \leq N \leq 10^6$

Output Format

Output exactly T lines, each line containing one integer - the answer to the corresponding test case modulo $10^9 + 7$

Sample Input 0

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3
2
3
4
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Sample Output 0

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1
2
2
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Explanation 0

There are 3 test cases

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1. For $N = 2$, $(N!) = 2$. Number of ways of splitting 2 is 1. The only pair is $(1, 2)$.
2. For $N = 3$, $(N!) = 6$. Number of ways of splitting is 2. The pairs are $(1, 6)$ and $(2, 3)$.
3. For $N = 4$, $(N!) = 24$. Number of ways of splitting is 2. The pairs are $(1, 24)$ and $(3, 8)$.

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