



Problem A

Minimum Factorial as a Multiple

(Time Limit: 1 second)

Let k be a positive integer. The factorial of k , denoted by $k!$, is equal to $1 \times 2 \times \cdots \times k$. Given an input number n , we want to find the smallest positive integer k such that $k!$ is a multiple of n .

Input Format

The input begins with a single positive integer m , which specifies the number of test cases. Then, each of the following m lines corresponds to a test case, which contains a single positive integer n .

Output Format

For each test case, output, on a separate line, the smallest positive integer k such that its factorial $k!$ is a multiple of n . (Note: For all test cases, it is guaranteed that the corresponding output k would be at most 12.)

Technical Specification

- $1 \leq m \leq 100$
- $1 \leq n \leq 10^7$
- For each integer n in the input test cases, there exists some k with $1 \leq k \leq 12$ such that $k!$ is a multiple of n

Example

Sample Input:	Sample Output:
3	1
1	5
40	12
136080	