Problem G
Inverse Factorial

A factorial $n!$ of a positive integer n is defined as the product of all positive integers smaller than or equal to n. For example,

$$21! = 1 \times 2 \times 3 \times \cdots \times 21 = 51\,090\,942\,171\,709\,440\,000.$$

It is straightforward to calculate the factorial of a small integer, and you have probably done it many times before. In this problem, however, your task is reversed. You are given the value of $n!$ and you have to find the value of n.

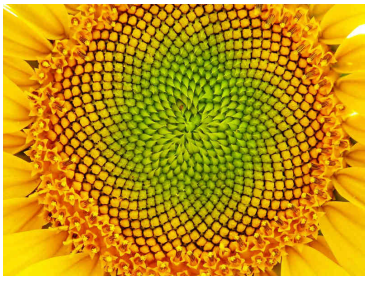


Photo by Ginette

Input

The input contains the factorial $n!$ of a positive integer n. The number of digits of $n!$ is at most 10^6.

Output

Output the value of n.

Sample Input 1	Sample Output 1
120	5

Sample Input 2	Sample Output 2
51090942171709440000	21

Sample Input 3	Sample Output 3
108888694504183521607680000000	27

This page is intentionally left blank.