



## 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  $n$ .



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### 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

120

#### Sample Output 1

5

#### Sample Input 2

51090942171709440000

#### Sample Output 2

21

#### Sample Input 3

10888869450418352160768000000

#### Sample Output 3

27

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