Problem H
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Problem ID: nnnnn

Hsara and Simone like to communicate without anyone else knowing what they're saying. This time, Simone invented a very sneaky cipher. When she wants to tell Hsara a non-negative number n, she performs the following encryption procedure.

Let $d(n)$ denote the decimal expansion of n. Consider the string $x := d(n)^n$, i.e., the decimal expansion of n concatenated with itself n times. The encryption of n is then the length of x.

As an example, assume Simone wants to encrypt the number 10. Then

$$x = 10101010101010101010.$$

The length of x is then 20, which will be the encrypted value of x.

Hsara had no problem writing a decryption algorithm for this procedure. But can you?

Input

The first and only line contains an integer L ($0 \leq L \leq 10^{10^6}$), the encrypted value of some non-negative integer n.

Output

Output a single line containing the integer n.

Sample Input 1	Sample Output 1
20	10