B: Champernowne Verification

Time Limit: 1 second, Memory limit: 2G

The k^{th} Champernowne word is obtained by writing down the first k positive integers and concatenating them together. For example, the 10^{th} Champernowne word is 12345678910.

Given a positive integer n, determine if it is a Champernowne word, and if so, which word.

Input

The first line contains a single integer, n ($1 \leq n \leq 10^9$). n will not have leading zeroes.

Output

If n is the k^{th} Champernowne word, output k. Otherwise, output -1.

Sample Input 1	Sample Output 1
123456789	9

Sample Input 2	Sample Output 2
1000000000	-1

Sample Input 3	Sample Output 3
11	-1

Sample Input 4	Sample Output 4
1324	-1