Problem M
Champernowne Verification

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

```
123456789
```

Sample Output 1

```
9
```

Sample Input 2

```
1000000000
```

Sample Output 2

```
-1
```

Sample Input 3

```
11
```

Sample Output 3

```
-1
```

Sample Input 4

```
1324
```

Sample Output 4

```
-1
```