Divisible numbers

You are given an integer N. Can you find the smallest integer M, such that M is divisible by N. However, M must satisfy the following properties.

- It shouldn't contain zeroes in its decimal representation.
- The sum of its digits must be greater than or equal to its product.

Your task is to output the **number of digits of M** in its decimal representation.

Input Format
A single line which contains the integer N.

Output Format
Output the *number of digits of M* in it's decimal representation.

Constraints
1<=N<=30000
N is not divisible by 10

Sample Input #0

```
1
```

Sample Output #0

```
1
```

Explanation #0

1 is divisible by 1 and it doesn't contain any zeroes in its decimal representation. The sum of its digits is equal to its product. The digits in M is 1. Hence the answer.

Sample Input #1

```
9
```

Sample Output #1

```
1
```

Explanation #1

the smalles integer M is 9 itself. As 9 is divisible by 9 and it has no zeroes in its decimal representation. The sum of its digits is equal to its product. The number of digits is 1 in 9 hence the answer 1.

Note

50 testcases will be run on submission during contest. An extra 50 testcases will be run on the highest scoring submission. These hidden testcases carries more weightage.

Timelimits

Timelimits for this challenge can be seen here