7416 Bringing Order to Disorder

A sequence of digits usually represents a number, but we may define an alternative interpretation. In this problem we define a new interpretation with the order relation $\prec$ among the digit sequences of the same length defined below.

Let s be a sequence of n digits, $d_1d_2\ldots d_n$, where each d_i $(1 \le i \le n)$ is one of 0, 1, ..., and 9. Let $sum(s)$, $prod(s)$, and $int(s)$ be as follows:

$$\begin{aligned} sum(s) &= d_1 + d_2 + \cdots + d_n \\ prod(s) &= (d_1+1) \times (d_2+1) \times \cdots \times (d_n+1) \\ int(s) &= d_1 \times 10^{n-1} + d_2 \times 10^{n-2} + \cdots + d_n \times 10^0 \end{aligned}$$

$int(s)$ is the integer the digit sequence s represents with normal decimal interpretation.

Let s_1 and s_2 be sequences of the same number of digits. Then $s_1 \prec s_2$ (s_1 is less than s_2) is satisfied if and only if one of the following conditions is satisfied.

1. $sum(s_1) < sum(s_2)$
2. $sum(s_1) = sum(s_2)$ and $prod(s_1) < prod(s_2)$
3. $sum(s_1) = sum(s_2),\ prod(s_1) = prod(s_2),$ and $int(s_1) < int(s_2)$

For 2-digit sequences, for instance, the following relations are satisfied.

$$00 \prec 01 \prec 10 \prec 02 \prec 20 \prec 11 \prec 03 \prec 30 \prec 12 \prec 21 \prec \ldots \prec 89 \prec 98 \prec 99$$

Your task is, given an n-digit sequence s, to count up the number of n-digit sequences that are less than s in the order $\prec$ defined above.

Input

The input file contains several test cases, each of them as described below.

Each of them consists of a single line as follows:

$d_1d_2\cdots d_n$

n is a positive integer at most 14. Each of d_1, d_2, ..., and d_n is a digit.

Output

For each test case, print the number of the n-digit sequences less than $d_1d_2\ldots d_n$ in the order defined above on a line by itself.

Sample Input

```
20
020
118
11111111111111
99777222222211
```

Sample Output

```
4
5
245
40073759
23733362467675
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