Art Academy VII: A Mysterious Object

Time limit: 1.0s **Memory limit:** 512M
Python: 4.0s

***hewmatt10* has been captured!**

After his army was defeated and his bunker discovered, he was found protecting a mysterious, password-protected box. **A_L_I_C_E_**'s interest now piqued, she decides to try and open it. Not much about **hewmatt10** was known other than the fact that his greatest enemy is **hewmatt100**.

She now hypothesizes:

> **hewmatt10** likes any integer X, where 10 is a subsequence of X (represented in base 10), but **does not** like X if 100 appears as a subsequence as well.
>
> Some numbers which he likes are **10**, 1**8**0, 8**1**79**0**9, and 404**1**4**0**4.
>
> Some numbers he **does not** like are **100**, **10000**, 2, **1**8**00**, and 808**1**7**0**9**00**5.

Given an integer K, help **A_L_I_C_E_** find out how many integers between 0 and K (inclusive) **hewmatt10** likes, modulo $10^9 + 7$.

Input Specification

The only line of input will contain K.

Subtask 1 [10%]

$1 \leq K \leq 10^6$

Subtask 2 [90%]

$1 \leq K \leq 10^{100\,000}$

Output Specification

Output how many integers **hewmatt10** likes between 0 and K (inclusive), modulo $10^9 + 7$.

Sample Input 1

```
200
```

Sample Output 1

```
19
```

Explanation for Sample Output 1

The 19 numbers are 10, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 120, 130, 140, 150, 160, 170, 180, and 190.

Sample Input 2

```
10000
```

Sample Output 2

```
486
```