Problem C
Office Number

Nathan is a mathematician at a famous university who often sees patterns in the world around him. One day he notices that his office number, which happens to be 224, has an interesting property: it can be written as a sum of non-negative powers of its digits. In particular, he observes that

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$$224 = 2^5 + 2^7 + 4^3$$

Nathan wonders what other numbers have this property, and, for any such number, in how many different ways it can be expressed like this. More precisely, if n is a positive integer with base-10 digits $d_1 d_2 \ldots d_k$, where d_1 is the most significant digit, he would like to know how many tuples of non-negative integers $(e_1, e_2, \ldots, e_k)$ there are such that

$$n = d_1^{e_1} + d_2^{e_2} + \ldots + d_k^{e_k}$$

For $n = 224$, the answer is 2, since the tuples $(5, 7, 3)$ and $(7, 5, 3)$ both work, but no others do.

Nathan has turned to you for help with this challenge. Since $0^e = 0$ for any positive exponent, and $1^e = 1$ for any non-negative exponent, you only need to consider numbers with digits in $\{2, 3, \ldots, 9\}$. Remember that $p^0 = 1$ for any positive integer, p.

Input

The input consists of a single positive integer, n, with $1 < n < 10\,000\,000$. Each digit of n is between 2 and 9, inclusive.

Output

Output a single integer: the number of ways n can be written as a sum of non-negative integer powers of its digits.

Sample Input 1

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224
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Sample Output 1

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2
```

Sample Input 2

```
225
```

Sample Output 2

```
0
```

Sample Input 3

```
9967749
```

Sample Output 3

```
42
```

CPU Time limit	8 seconds
Memory limit	1024 MB
Downloads	Sample data files
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Source	2022 Atlantic Canadian Programming Competition
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