Project Euler #34: Digit factorials

This problem is a programming version of Problem 34 from projecteuler.net

19 is a curious number, as $1! + 9! = 1 + 362880 = 362881$ which is divisible by 19.

Find the sum of all numbers below N which divide the sum of the factorial of their digits.

Note: as $1!, 2!, \cdots, 9!$ are not sums they are not included.

Input Format

Input contains an integer N

Constraints

$10 \leq N \leq 10^5$

Output Format

Print the answer corresponding to the test case.

Sample Input

```
20
```

Sample Output

```
19
```