Problem M. Math String

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Consider a string S of length N composed of 11 characters: '1', '2', '3', '4', '5', '6', '7', '8', '9', '+', '*'.

We will call string S a *math string* if:

- The first and last characters of S are neither '+' nor '*'.

- When two consecutive characters are taken from S, at least one of them is neither '+' nor '*'.

Each math string can be treated as an arithmetic expression with integers in decimal notation using ordinary arithmetic operations, where multiplication takes precedence over addition. For each such expression, its value can be calculated: for example, the value of math string "35+2*6" is 47. Please find the sum of the values of all math strings of the given length N, modulo $998\,244\,353$.

Input

The input contains one integer N $(1 \le N \le 10^{18})$.

Output

Print one integer: the answer to the problem.

Examples

standard input	*standard output*
1	45
3	407430
1000000000000000000	493565653

Note

In the Example 1, there are only 9 distinct one-digit math strings: the digits from '1' to '9'. The sum of those digits, treated as arithmetic expressions, is equal to 45.