

Problem E: Expression Sum

- Time Limit: 3 sec

Problem Statement

You are given a string S . Each character in S is one of **0123456789 + ()?**.

Let T be a string formed by replacing each **?** in S with one of **0123456789 + ()**. Define $\text{eval}(T)$ as follows:

- If T is a **valid expression**, then it is the value obtained by evaluating T as an expression.
- If T is not a **valid expression**, then it is **0**.

Compute the sum of $\text{eval}(T)$ for all possible ways to replace each **?** in S with one of **0123456789 + ()**, and output the result modulo **998,244,353**.

A **valid expression** is defined by the following BNF:

```
<expression> ::= <expression> "+" <primary> | <primary>
<primary> ::= "(" <expression> ")" | <number>
<number> ::= <nonzero-digit> <number-sub> | <digit>
<number-sub> ::= <number-sub> <digit> | <digit>
<digit> ::= "0" | <nonzero-digit>
<nonzero-digit> ::= "1" | "2" | "3" | "4" | "5" | "6" | "7" | "8" | "9"
```

Input

The input is given in the following format:

S

- $1 \leq |S| \leq 3,000$
- Each character of S is one of **0123456789 + ()?**.

Output

Output the answer.

Sample Input 1	Sample Output 1
?1?	46306
Sample Input 2	Sample Output 2
20????0+2??	651059511