621 Secret Research

At a certain laboratory results of secret research are thoroughly encrypted. A result of a single experiment is stored as an information of its completion:

'positive result', 'negative result', 'experiment failed' or 'experiment not completed'

The encrypted result constitutes a string of digits S, which may take one of the following forms:

- positive result — S = 1 or S = 4 or S = 78
- negative result — S = S35
- experiment failed — S = 9S4
- experiment not completed — S = 190S

(A sample result S35 means that if we add digits 35 from the right hand side to a digit sequence then we shall get the digit sequence corresponding to a failed experiment)

You are to write a program which decrypts given sequences of digits.

Input

A integer n stating the number of encrypted results and then consecutive n lines, each containing a sequence of digits given as ASCII strings.

Output

For each analysed sequence of digits the following lines should be sent to output (in separate lines):

`+`	for a positive result
`-`	for a negative result
`*`	for a failed experiment
`?`	for a not completed experiment

In case the analysed string does not determine the experiment result, a first match from the above list should be outputted.

Sample Input

```
4
78
7835
19078
944
```

Sample Output

```
+
-
?
*
```