

7104 Hill Number

A Hill Number is a number whose digits possibly rise and then possibly fall, but never fall and then rise.

- 12321 is a hill number.
- 12223 is a hill number.
- 33322111 is a hill number.
- 1232321 is not a hill number.
- 101 is not a hill number.
- 1111000001111 is not a hill number.

Given an integer n , if it is a hill number, print the number of hill numbers less than it. If it is not a hill number, print '-1'.

Input

Input will start with a single line giving the number of test cases. Each test case will be a single positive integer on a single line, with up to 70 digits. The result will always fit into a 64-bit long.

Output

For each test case, print '-1' if the input is not a hill number. Print the number of hill numbers less than the input value if the input value is a hill number.

Sample Input

```
5
10
55
101
1000
1234321
```

Sample Output

```
10
55
-1
715
94708
```