

Product of digits

For a given non-negative integer number N , find the minimal natural Q such that the product of all digits of Q is equal N .

Input

The first line of input contains one positive integer number, which is the number of data sets. Each subsequent line contains one data set which consists of one non-negative integer number N ($0 \leq N \leq 10^9$).

Output

For each data set, write one line containing the corresponding natural number Q or -1 if Q does not exist.

Sample Input

```
3
1
10
123456789
```

Sample Output

```
1
25
-1
```
