Atlassian

Sydney - Graduate 2018 Develo...

30m : 40s
to test end

1

2

3

4

5

☆ A Very Special Multiple

Charlie and Johnny play the following game:
For every integer ***X*** Charlie gives, Johnny has to find the smallest positive integer ***Y***, such that ***X*** x ***Y*** (***X*** multiplied by ***Y***) consists of a series of one or more 4's followed by zero or more 0's. For instance, 404 would be an invalid answer, but 4400, 440, and 444 are all valid.

Your program will read the value of ***X*** and deduce the number ***Z = 2a + b,*** where ***a*** is the number of 4's and ***b*** is the number of 0's in the answer ***X*** x ***Y***.

Input Format

The first line contains an integer T .
T lines follow, each line containing an integer to be used as X in one turn of the game described above.

Output Format

For every ***X***, print the output *2**a*** + ***b*** on a separate line so that the string of ***a*** 4's followed by ***b*** 0's is the answer to the problem described above.

Constraints

1 <= ***T*** <= 100
1 <= ***X*** <= 10^{10}

Sample Input

```
3
4
5
80
```

Sample Output

```
2
3
4
```

Explanation

For the 1st test case, the smallest such multiple of **4** is **4** itself. Hence ***Y*** is **1**, ***a*** is **1** and ***b*** is **0**.
The required value ***Z*** = *2**a*** + ***b*** is **2.**

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For the 3rd test case, **Y** = 5 and 400 is the minimum multiple. Hence value of ***a*** is **1**, ***b*** is **2** and ***Z*** = *2**a*** + ***b*** is **4**.

YOUR ANSWER

1
2
3
4
5

We recommend you take a quick tour of our editor before you proceed.
The timer will pause up to 90 seconds for the tour. Start tour

For help on how to read input and write output in 'Python 2', click here.

Original code | Python 2

```
1 # Enter your code here. Read input from STDIN. Print output
  to STDOUT
```

Line: 1 Col: 1

Test against custom input

Run Code | Submit code & Continue

(You can submit any number of times)

Download sample test cases *The input/output files have Unix line endings. Do not use Notepad to edit them on windows.*