## A Very Special Multiple

Charlie and Johnny play a game. For every integer $X$ Charlie gives, Johnny has to find the smallest positive integer $Y$ such that $X \times Y(X$ multiplied by $Y)$ contains only 4 s and 0 s and starts with one or more 4 s followed by zero or more 0s. For example, 404 is an invalid number but 4400, 440, and 444 are valid numbers.

If $a$ is the number of 4 s and $b$ is the number of 0 s , can you print the value of $(2 \times a)+b$ ?

## Input Format

The first line of input contains a single integer $T$, the number of test cases.
$T$ lines follow, each line containing the integer $X$ as stated above.

## Output Format

For every $X$, print the output $(2 \times a)+b$ in a newline as stated in the problem statement.

## Constraints

$1 \leq T \leq 100$
$1 \leq X \leq 10^{10}$

## Sample Input

```
3
4
5
80
```


## Sample Output

```
2
3
4
```


## Explanation

For the $1^{\text {st }}$ test case, the smallest such multiple of 4 is 4 itself. Hence the value of $a$ will be 1 and and the value of $b$ will be 0 , and the answer is $(2 \times a)+b=2$.

For the $2^{\text {nd }}$ test case, $Y=8$ and 40 is the minimum such multiple of 5 . Hence the values of $a, b$ and $(2 \times a)+b$ will be 1,1 and 3 respectively.

