# Project Euler #69: Totient maximum

### Problem Statement

This problem is a programming version of Problem 69 from projecteuler.net

Euler's Totient function, $\phi(n)$ [sometimes called the phi function], is used to determine the number of numbers less than $n$ which are relatively prime to $n$. For example, as $1, 2, 4, 5, 7$, and $8$, are all less than nine and relatively prime to nine, $\phi(9) = 6$.

| $n$ | $Relatively\ Prime$ | $\phi(n)$ | $n/\phi(n)$ |
|---|---|---|---|
| $2$ | $1$ | $1$ | $2$ |
| $3$ | $1,2$ | $2$ | $1.5$ |
| $4$ | $1,3$ | $2$ | $2$ |
| $5$ | $1,2,3,4$ | $4$ | $1.25$ |
| $6$ | $1,5$ | $2$ | $3$ |
| $7$ | $1,2,3,4,5,6$ | $6$ | $1.1666\ldots$ |
| $8$ | $1,3,5,7$ | $4$ | $2$ |
| $9$ | $1,2,4,5,7,8$ | $6$ | $1.5$ |
| $10$ | $1,3,7,9$ | $4$ | $2.5$ |

It can be seen that $n = 6$ produces a maximum $n/\phi(n)$ for $n < 10$. Find the value of $n < N$ for which $n/\phi(n)$ is maximum. In case of multiple answers, print the minimum.

### Input Format

First line contains $T$, denoting number of test cases. $T$ lines follow
Each line contains $N$

### Constraints

$1 \leq T \leq 1000$
$3 \leq N \leq 10^{18}$

### Output Format

Print the answer corresponding to each testcase on a new line.

### Sample Input

```
2
3
10
```

### Sample Output

```
2
6
```