# 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	$1.1666\dots$
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

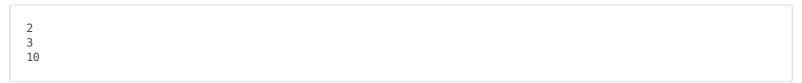
#### Constraints

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

# **Output Format**

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

### **Sample Input**



#### **Sample Output**

2		
6		