

Problem 4

Given an integer N you have to find smallest prime number which comes after N, means smallest prime which is greater than N.

Input

First line contains T the number of test cases. Each of next T lines contain one integer N.
 $1 \leq N \leq 10^9$

Output

For each test case print the answer in a new line.

Example

Input:

2
5
21

Output:

7
23