Arjun wants to enter into chamber of secrets. To enter the chamber, he needs to open N doors where each door has a number K[i] written on it (i ranges from 1 to N). Bhavna tells him that i[th] door can be opened by a spell that is sum of largest prime number smaller than the K[i] and the smallest prime number greater than K[i].

Unfortunate Arjun is not very good with the mathematics, help him to open all the doors.

Input
First line of input contains a single integer N denoting the number of doors.
Next N lines contain 1 number per line denoting the Number written on each door. (K[i])

Output
For each door, print a single line containing the spell (number that can open the door).
Make sure to print 1 answer per line. You should print output on stdout stream. Stderr would be ignored and you can use it for local debugging as per your need. Don't print anything other than the required answer on stdout.

Constraint
$1 \leq N \leq 100$
$3 \leq K[i] \leq 10,000 \ (10^4)$

<u>Example</u>

Input:
2
6
10

Output:
12
18

Explanation
For first case, the required prime numbers greater than and smaller than 6 are 5 and 7 and so the answer is (5+7).
For second second, required prime numbers are 7 and 11, and thus the answer is (7+11).

---

p.s. A prime number (or a prime) is a natural number greater than 1 that has no positive divisors other than 1 and itself.