Individualist Class

Time Limit	1s
Memory Limit	64MB

Description

You just got accepted on ITB. Just like everyone else, you are individualist and hate just being with others. You have N classes this semester and you know that each class have their own group assignments. The teachers will divide the class into groups of K students if and only if the number of class members is divisible by k. Of course they won't make a group consist of whole class members. You afraid to be grouped with some other people since that is your nature, so you think of evil plan to kick out some students by infiltrating the school systems. To reduce the school's administrator suspicion, you should minimize the number of students to be kicked.

Input Format

First input consist of a natural number N in a line. Second input consist of N lines, each line consist an natural number K_i, the number of students in i-th class you take.

Output Format

Print N lines, the minimum number of students you need to kick in the i-th class you take.

Constraint

- $1 \leq N \leq 10^6$
- $2 \leq K_i \leq 10^8$

Sample Input 1

```
3
2
4465
10000000
```

Sample Output 1

```
0
2
9
```