!!!Honorably the first number

- Time limit: 1 second
- Memory limit: 256 MB

Qanbar, after having established his previous theories in the hearts of the people of Qairqanbarabad with your help, has now gained a lot of popularity and people expect new definitions from him. One day, when Qanbar was tired and angry of people's pressure, he found the honorable first number:

A nominally prime number is a number that has the first index in the ascending sequence of prime numbers.
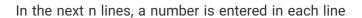
As usual, Qanbar is confused by the many questions of the people and he does not know which number is honorable first and which number is not. He wants help! ^_^

Input

In the first line of the input, the number of questions that people have asked Qanbar is entered

$$1 \le n \le 10^6$$

In the next n lines, a number is entered in each line

$$1 \leq m \leq 10^3$$

Output

The output of the program consists of n lines, in the i-th line, you print the mth number of the first name.

Do not use an array in this question.

Example

Sample input 1

```
2
4
5
```

Sample output 1

```
17
31
```

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