

Finding the Kth Prime

The problem statement is really simple. There are some queries. You are to give the answers.

Input

An integer stating the number of queries Q (equal to 50000), and Q lines follow, each containing one integer K between 1 and 5000000 inclusive.

Output

Q lines with the answer of each query: the K th prime number.

Example

Input:

```
7
1
10
100
1000
10000
100000
1000000
```

Output:

```
2
29
541
7919
104729
1299709
15485863
```