Control C501A   P16425_en

Your task is to write a program that, for each n given, prints the n smallest first prime numbers.

Input

The input is a sequence of natural numbers n with $1 \leq n \leq 1000$.

Output

For each n, print a line with the n first prime numbers, in increasing order, and separated by a comma.

Observation

Before reading any n, do a sieve of Eratosthenes to precalculate the first 1000 prime numbers. Knowing that 7919 is the prime number 1000 could be useful.

Sample input

```
5
10
1
29
```

Sample output

```
2,3,5,7,11
2,3,5,7,11,13,17,19,23,29
2
2,3,5,7,11,13,17,19,23,29,31,37,41,43,47,53,59,61,67,71,73,79,83,89,97,101,103,107,109
```

Problem information

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