DMOPC '17 Contest 5 P3 - Mimi and Primes

Time limit: 1.0s **Memory limit:** 128M

In math class, Mimi learned about primes! To test her knowledge, her teacher assigned her the following problem for homework:

> Given an array A of N elements, determine the largest prime number which divides every element of the array, or `DNE` if no such prime exists.

Mimi was sleeping in class, so she has no idea how to approach this problem! Can you write a program to help her finish her homework?

Python users are recommended to use PyPy over CPython. There is a significant performance increase.

Constraints

Subtask 1 [10%]

$1 \leq N \leq 300$
$1 \leq A_i \leq 300$

Subtask 2 [90%]

$1 \leq N \leq 10^5$
$1 \leq A_i \leq 10^{15}$

Input Specification

The first line of input will contain a single integer, N.
The next line of input will contain N space separated integers, $A_1, A_2, \ldots, A_N$.

Output Specification

The output should consist of a single line, either the largest prime which divides all elements in the array, or `DNE` if no such prime exists.

Sample Input

```
5
6 12 18 24 30
```

Sample Output

```
3
```