DMOPC '17 Contest 5 P3 - Mimi and Primes

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, $A_1, A_2, ...A_N$.

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