

# DMOPC '17 Contest 5 P3 - Mimi and Primes

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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

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### 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

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

## Output Specification

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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

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5
6 12 18 24 30
```

## Sample Output

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