Introduction to Number Theory

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Busy Beaver has just learned about divisors and multiples in elementary school. Now, Busy Beaver challenges you with the following problem.

You are given a sequence a of length N. Find any **positive** integer X such that:

- For every i, X is either a multiple or a divisor of a_i;
- there exists at least one index i such that X is a multiple of a_i;
- there exists at least one index i such that X is a divisor of a_i;

or determine that no such integer exists.

Input

The first line contains a single integer T ($1 \leq T \leq 10^4$) — the number of test cases.

The first line of each test case contains an integer N ($2 \leq N \leq 3 \cdot 10^5$) — the length of the sequence a.

The second line of each test case contains N integers $a_1, a_2, \ldots, a_N$ ($1 \leq a_i \leq 10^9$).

The sum of N across all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, output a single integer — the value of X, or -1 if no such X exists.

If there are multiple valid values for X, you may output any of them.

Scoring

There are two subtasks for this problem.

- (40 points): The sum of N across all test cases does not exceed 2000.
- (60 points): No additional constraints.

Example

standard input	standard output
6 3 36 2 12 6 10 20 30 40 50 60 7 8 7 6 5 4 3 2 6 10 6 1 90 2 15 3 10 2 5 2 1 1	6 10 -1 30 10 1

Note

In the first test case, 6 is a divisor of 36 and 12, and is a multiple of 2.

In the second test case, 10 is a divisor of all elements, and also a multiple of 10.

In the third test case, there is no integer that satisfies the constraints.