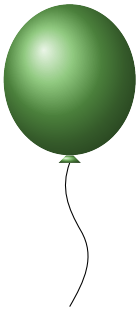
# F Factory Table



| × | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| **1** | 1 | 2 | 3 | 4 |
| **2** | 2 | 4 | 6 | 8 |
| **3** | 3 | 6 | 9 | 12 |
| **4** | 4 | 8 | 12 | 16 |

You are playing the sandbox game Mathcraft. Each crafting table of level $k$ can produce all possible products obtained by multiplying two numbers between 1 and $k$.

If you unroll the $k$-th crafting table, you get the array $[1\cdot1, 1\cdot2, \ldots, 1\cdot k, 2\cdot1, 2\cdot2, \ldots, 2\cdot k, \ldots, k\cdot1, k\cdot2, \ldots, k\cdot k]$. For example, for $k = 4$, the unrolled table is $[1, 2, 3, 4, 2, 4, 6, 8, 3, 6, 9, 12, 4, 8, 12, 16]$.

Your friend Bob crafted a (contiguous) subarray of one unrolled crafting table. This subarray is $a_1, a_2, \ldots, a_n$.

You want to know how skilled Bob is, so you want to find the minimum possible level of his crafting table. Specifically, you want to determine the smallest $k$ such that $a_1, a_2, \ldots, a_n$ appears as a subarray of the $k$-th unrolled table.

An array $b$ is a subarray of an array $c$ if $b$ can be obtained from $c$ by deleting several (possibly zero or all) elements from the beginning and several (possibly zero or all) elements from the end.

## Input

Each test contains multiple test cases. The first line contains the number of test cases $t$ ($1 \le t \le 500$). The description of the test cases follows.

The first line of each test case contains a single integer $n$ ($2 \le n \le 100$) — the length of the array $a_1, a_2, \ldots, a_n$.

The second line of each test case contains $n$ integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$).

Note that there are no constraints on the sum of $n$ over all test cases.

## Output

For each test case, output a single line containing an integer: the smallest crafting table level $k$ such that the array $a_1, a_2, \ldots, a_n$ appears as a contiguous subarray of the $k$-th unrolled table. For the given input, such a $k$ always exists.

## Samples

| Sample input 1 | Sample output 1 |
|---|---|
| 4<br>4<br>4 6 8 10<br>6<br>8 3 6 9 12 4<br>5<br>30 40 50 60 70<br>4<br>1 2 2 4 | 5<br>4<br>10<br>2 |

**Explanation of sample 1.**

In the first test case, the array $[4, 6, 8, 10]$ is a subarray of the 5-th unrolled table, which is $[1, 2, 3, 4, 5, 2, 4, 6, 8, 10, \ldots, 5, 10, 15, 20, 25]$. There is no smaller valid $k$, so the answer is 5.

In the second test case, the array $[8, 3, 6, 9, 12, 4]$ is a subarray of the 4-th unrolled table, which is $[1, 2, 3, 4, 2, 4, 6, 8, 3, 6, 9, 12, 4, 8, 12, 16]$.

Image credits: Bernard Ladenthin, CC0, via Wikimedia Commons.