# The Duality Task

Accuracy: 40.53% Submissions: 296 Points: 25

> *The **duality** of array **A** is defined as the maximum length among all non-empty subsequences (https://en.wikipedia.org/wiki/Subsequence) of array **A** whose greatest common divisor (https://en.wikipedia.org/wiki/Greatest_common_divisor) is greater than 1.*

You are given two arrays, **A** and **B,** of the same size **N**. Consider a new array **C** of size **N** initially equal to **A**. In one operation, you can replace any element of **C** with any value. The **beauty** of array **C** is defined as the number of indices **i** ($1 \le i \le N$) where $\mathbf{C_i}$ and $\mathbf{B_i}$ have the **same** value.
Find the **maximum** possible beauty of array **C** such that the duality of array **C** is ***greater than or equal to*** the duality of array **A** by performing any number of operations.

**Input Format:**
The first line of the input contains a single integer **T** denoting the number of test cases. The description of **T** test cases is as follows:

- The first line of each test case contains integer **N**, the array **A** and **B** size.
- The second line contains **N** space-separated integers $\mathbf{A_1, A_2, .., A_N}$.
- The third line contains **N** space-separated integers, $\mathbf{B_1, B_2, .., B_N}$.

**Output Format:**
For each test case, print the maximum possible answer followed by a newline character.
**Note:** The generated output is white space sensitive, do not add any extra spaces on unnecessary newline characters.

**Constraints:**
$1 \le \mathbf{T} \le 10^4$
$1 \le \mathbf{N} \le 2 * 10^5$
$1 \le \mathbf{A_i, B_i} \le 10^6$
*the sum of **N** over all test cases does not exceed* $5 * 10^5$