Practice Contest 2

Coloring Segments

You are given n horizontal segments and m vertical segments. The i-th horizontal segment has one endpoint at $(0, i)$ and another at (a_i, i). The j-th vertical segment has one endpoint at $(j, 0)$ and another at (j, b_j).

You want to color the segments such that if two segments intersect, they must have the same color. What is the maximum possible number of distinct colors the segments can have?

Input

- The first line contains T, the number of test cases. Each testcase consists of 3 lines.

- The first line of each testcase contains two integers, n and m.

- The second line contains n space separated integers $a_1, a_2, \ldots a_n$.

- The third line contains m space separated integers $b_1, b_2, \ldots b_m$.

Output

For each testcase, print one line containing the maximumum possible number of colors.

Test Data

In all inputs,

- $1 \le T \le 100$

- $1 \le n, m, a_i, b_j \le 5 \times 10^5$

- The sum of $n + m$ over all testcases doesn't exceed 2×10^6

Subtask 1 (27 Points): $n, m \le 100$, the sum of $n + m$ over all testcases doesn't exceed 1000.

Subtask 2 (19 Points): $n, m \le 2000$, the sum of $n + m$ over all testcases doesn't exceed 2×10^4.

Subtask 3 (21 Points): $b_j = j$ for all valid j and the sum of $n + m$ over all testcases doesn't exceed 3×10^5.

Subtask 4 (33 Points): No additional constraints
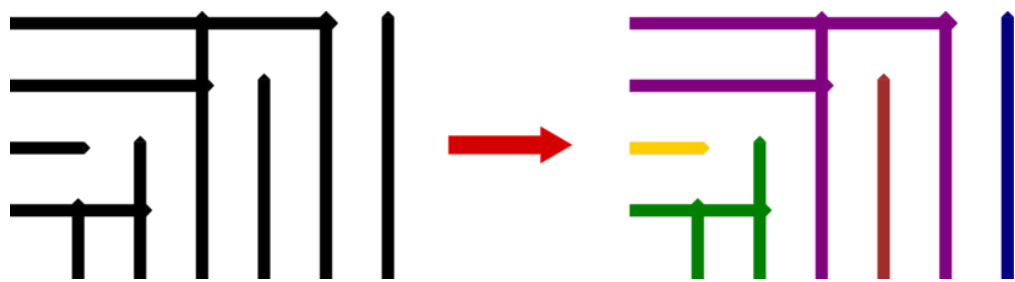
Sample Input

```
4
4 6
2 1 3 5
1 2 4 3 4 4
1 1
1
1
5 5
1 1 1 1
1 1 1 1 1
5 5
1 2 3 4 5
1 2 3 4 5
```

Sample Output 2

```
5
1
9
5
```

Explanation

In the first case, the segments can be painted in 5 different colors, as shown in the image:

Limits

Time: 5 seconds

Memory: 256 MB