# Problem I. TRIPLE
# Time Limit: 3 seconds

## Problem Description

Given the finite **multi-set** $A$ of $n$ pairs of integers, an another finite **multi-set** $B$ of $m$ triples of integers, we define the product of $A$ and $B$ as a **multi-set**

$$\begin{aligned} C &= A * B \\ &= \{\langle a, c, d\rangle \mid \langle a, b\rangle \in A,\ \langle c, d, e\rangle \in B \text{ and } b = e\} \end{aligned}$$

For each $\langle a, b, c\rangle \in C$, its BETTER set is defined as

$$\begin{aligned} &BETTER_C(\langle a, b, c\rangle) \quad = \\ &\quad \{\langle u, v, w\rangle \in C \quad \mid \quad \langle u, v, w\rangle \neq \langle a, b, c\rangle,\ u \geq a,\ v \geq b,\ w \geq c\} \end{aligned}$$

As a **multi-set** of triples, we define the TOP subset (as a multi-set as well) of $C$, denoted by $TOP(C)$, as

$$TOP(C) = \{\langle a, b, c\rangle \in C \mid BETTER_C(\langle a, b, c\rangle) = \emptyset\}$$

You need to compute the size of $TOP(C)$.

## Input

The input contains several test cases. The first line of the input is a single integer $t$ ($1 \leq t \leq 10$) which is the number of test case. Then $t$ test cases follow.

Each test case contains three lines. The first line contains two integers $n$ ($1 \leq n \leq 10^5$) and $m$ ($1 \leq m \leq 10^5$) corresponding to the size of $A$ and $B$ respectively. The second line contains $2 \times n$ nonnegative integers

$$a_1, b_1, a_2, b_2, \cdots, a_n, b_n$$

which describe the multi-set $A$, where $1 \leq a_i, b_i \leq 10^5$. The third line contains $3 \times m$ nonnegative integers

$$c_1, d_1, e_1, c_2, d_2, e_3, \cdots, c_m, d_m, e_m$$

corresponding to the $m$ triples of integers in $B$, where $1 \leq c_i, d_i \leq 10^3$ and $1 \leq e_i \leq 10^5$.

## Output

For each test case, you should output the size of set $TOP(C)$.

## Sample Input

```
2
5 9
1 1 2 2 3 3 3 3 4 2
1 4 1 2 2 1 4 1 1 1 3 2 3 2 2 4 1 2 2 4 3 3 2 3 4 1 3
3 4
2 7 2 7 2 7
1 4 7 2 3 7 3 2 7 4 1 7
```

## Sample Output

```
Case #1: 5
Case #2: 12
```