3 Sorted Arrays

Time limit: 1s

Memory Limit: 512MB

So, given 3 1-indexed sorted arrays (A[], B[], C[]), find the number of triplets $1 \leq i \leq j \leq k$, such that: $A[i] \leq B[j] \leq C[k]$. Note that i, j and k don't exceed the size of respective arrays.

For example,

Arrays:

A = [1, 2, 3, 4]

B = [5, 6, 7, 8]

C = [9, 10, 11, 12]

The triplet (i, j, k) = (1, 2, 3) has to be considered because:

$A[1] \leq B[2] \leq C[3]$.

Input

First line contains T, the number of test cases. Each test case consists of:

1. P, the length of first array. The next line will consist of P integers.
2. Q, the length of second array. The next line will consist of Q integers.
3. R, the length of third array. The next line will consist of R integers.

Output

For each test case print the required answer in one line.

Constraints

- $1 \leq T \leq 3$
- $1 \leq P, Q, R \leq 10^5$
- $-10^9 \leq$ Elements of arrays $\leq 10^9$

Example

Input:

1

3

1 5 6

3

2 3 4

3

7 8 9

Output:

6

Explanation

The possible triplets (i, j, k) are:

(1, 1, 1)

(1, 1, 2)

(1, 1, 3)

(1, 2, 2)

(1, 2, 3)

(1, 3, 3)