

You have given a 2-dimensional array 'ARR' with 'N' rows and 'M' columns. The queries are given in a 2-dimensional array 'Queries' of size 'K', in which Queries[i] contains four integers denoting the left top and right bottom indices of the submatrix whose sum we need to find. Your task is to find the sum of the submatrix for each query given in the array 'Queries'.

For example:

Consider ARR = [[1 , 2 , 3] , [3 , 4 , 1] , [2 , 1 , 2]] and Queries = [[0 , 0 , 1 , 2]], the submatrix with the left top index (0 , 0) and right bottom index (1 , 2) is

```
[[1 , 2 , 3] ,  
 [3 , 4 , 1]].
```

The sum of the submatrix is 14. Hence, the answer is 14 in this case.

Input Format:

The first line of the input contains an integer, 'T,' denoting the number of test cases.

The first line of each test case contains three space-separated integers, 'N', 'M', and 'K', denoting the number of rows and the number of columns in the array 'ARR', and the number of rows in the array 'Queries' respectively.

The Next 'N' lines of each test case contain 'M' space-separated integers denoting the elements of the array 'ARR'.

The Next 'K' lines of each test case contain four space-separated integers denoting the elements of the array 'Queries'.

Output Format:

For each test case, print 'K' space-separated integers - the sum of the submatrix for each query.

Print the output of each test case in a separate line.

Constraints :

```
1 <= N <= 10 ^ 3  
1 <= M <= 10 ^ 3  
1 <= K <= 10 ^ 3  
1 <= ARR[i][j] <= 10 ^ 6  
0 <= Queries[i][0] , Queries[i][2] < N  
0 <= Queries[i][1] , Queries[i][3] < M
```

Where 'T' denotes the number of test cases, 'N' and 'M' denotes the number of rows and the number of columns in the array 'ARR' respectively, 'K' denotes the number of rows in the array 'Queries', 'ARR[i][j]' denotes the 'j-th' element of 'i-th' row of the array 'ARR' and 'Queries[i]' contains four integers denoting the left top and right bottom indices of the submatrix.

Time Limit: 1sec

Sample Input 1 :

```
2
2 2 1
4 2
1 3
0 0 1 0
3 3 2
2 1 2
3 2 6
1 4 5
1 1 2 2
0 1 0 2
```

Sample Output 1 :

```
5
17 3
```

Explanation Of Sample Input 1:

For the first test case,

The submatrix with the left top index (0 , 0) and right bottom index (1 , 0) is

```
[[4] ,
 [1]].
```

The sum of the submatrix is 5. Hence, the answer is 5 in this case.

For the second test case,

The submatrix with the left top index (1 ,1) and right bottom index (2 , 2) is

```
[[2 , 6] ,
 [4 , 5]].
```

The sum of the submatrix is 17. Hence, the answer is 17 in this case.

The submatrix with the left top index (0 , 1) and right bottom index (0 , 2) is

```
[[1 , 2]].
```

The sum of the submatrix is 3. Hence, the answer is 3 in this case.

Sample Input 2 :

```
2
2 2 2
5 6
7 5
0 0 0 0
0 0 1 1
3 3 2
3 4 3
4 3 4
1 1 1
0 0 0 2
0 0 2 1
```

Sample Output 2 :

```
5 23
10 16
```