Connecting points

On a line, there are L red points, M blue points, and N purple points. The graph G is obtained from the points. The points correspond to the vertices of G. If two vertices a and b are connected by an edge e, consider an interval I on the line to connect the points p and q corresponding to a and b, respectively. The weight w(e) of the edge e is given by the length of I.

The graph G should contain two subgraphs R and B satisfying the followings:

(1) The graph R contains only the vertices corresponding to all the red and all the purple points.

(2) The graph B contains only the vertices corresponding to all the blue and all the purple points.

(3) Both of R and B are connected. That is, there is always a path between arbitrary two points in R or B.

Given the coordinates of the points, write a program to find the graph G containing two subgraph R and B satisfying the above conditions and to minimize the sum of weights of edges in the graph G.

For example, in Figure 1, the points with numbers 1, 2, and 3 represent the red, blue, and purple points, respectively. If the graph G is obtained to connect points like the dashed lines, then G contains two subgraphs satisfying the above conditions and the total weight of edges in G is 19 and it is a minimum.

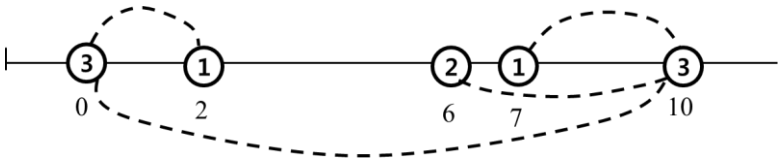

Figure 1.

[입력]
The number of cases T is given the first line of the input file. Here, T ≤ 40. In the first line of each case, three integers L, M, N(L, N, M ≥0, 0 ≤ L+ M+ N ≤ 100,000) are given. Here L, M, N are the numbers of red, blue, and purple points, respectively. In each of the following L lines, an integer x is given to represent a coordinate of a red point. In each of the following M lines, an integer y is given to represent a coordinate of a blue point. In each of the following N lines, an integer z is given to represent a coordinate of a purple point. Here, 0 ≤ x, y, z ≤ 1,000,000,000.

The input is given from the following three sets.

- Set 1: N = 0.
- Set 2: either L = 0 or M = 0.
- Set 3: No additional constraints.

[출력]
Among the graphs G to contain two subgraphs satisfying the above conditions, print the minimum of the total weight of the edges in G.

[I/O Example]
Input

```
2
2 1 2
2
7
6
0
10
2 3 3
11
8
1
9
4
0
15
5
```

Output

```
19
27
```