

Problem E

Archery at the Summer Opymlic Camp

Time limit: 3 seconds

The Summer Opymlic Camp (SoCamp) is about to start, and you are asked to design a computer program to help judge the archery sport!

The regions on the target are represented by convex polygons in the plane and are denoted by $C_1, C_2, \dots, C_n$. It is guaranteed that, for any $1 \leq i < j \leq n$, the polygon C_i contains C_j in its interior, i.e., the regions form a nesting sequence. In addition, each region, say C_i , is associated with a score p_i .

The evaluation of a shot is simple. If the arrow falls inside a region, say, C_i , or falls on its boundary, the player gets p_i points (from C_i). Otherwise, it is considered irrelevant (to C_i). Hence, the score of a shot is the total scores the shot gets from all the regions.

Given the regions, $C_1, C_2, \dots, C_n$, the points $p_1, p_2, \dots, p_n$ they are worth, and a sequence of shots $(x_1, y_1), (x_2, y_2), \dots, (x_m, y_m)$, your task is to output the score of the shots.

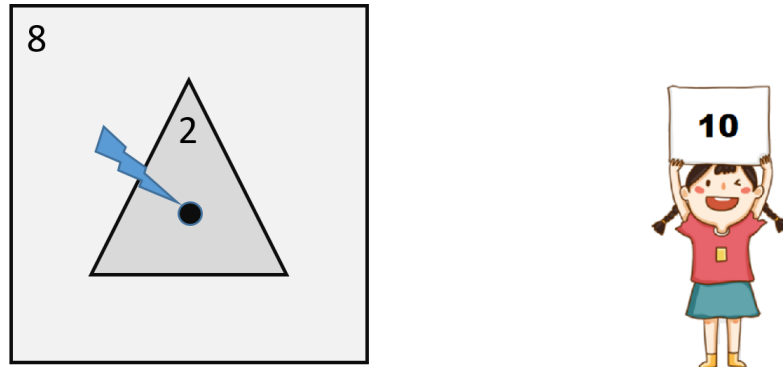


Figure 1: In this example, there are two convex polygons C_1 with $p_1 = 8$ and vertices $\{(-2, 2), (-2, -2), (2, -2), (2, 2)\}$ and C_2 with $p_2 = 2$ and vertices $\{(0, 1), (-1, -1), (1, -1)\}$. With shot located at $(0, 0)$, the player gets 10 points from the two polygons.

Input Format

There are multiple test cases in the input file, separated by a blank line.

Each test case starts with two integers n and m in a line, which are the number of regions and the number of shots. Then it comes n regions in order. Each region C_i starts with two integers p_i and k_i in a line, which are the score of C_i and the number of vertices of C_i . Then there are k_i lines, one for each vertex of C_i in counter-clockwise (CCW) order and

each containing two integers which are the coordinates of the vertices. After the n regions, there are m lines, one for each shot and each of which contains two integers that are the coordinates of the shots.

A test case with $n = m = 0$ indicates the end of the input.

You may additionally assume the following.

- $0 \leq n, m \leq 10^5$, $0 \leq p_i \leq 10^3$, $3 \leq k_i \leq 10^5$.
- The absolute value of all coordinates does not exceed 10^9 .
- The total number of vertices in the input does not exceed 10^6 .

Output Format

For each test case, print the score of each shot in a line.

Sample Input

```
2 3
8 4
-2 2
-2 -2
2 -2
2 2
2 3
0 1
-1 -1
1 -1
0 0
3 4
-2 1

0 0
```

Output for the Sample Input

```
10
0
8
```