

Rounded Convex Hull

Problem ID: roundedconvexhull
Time limit: 1 second

On a 2D plane, there are N circles and M polygons. Find the perimeter of the convex hull of all these figures.

Input

The first line of input contains 2 integers N and M ($0 \leq N, M \leq 10^5$, $1 \leq N + M$), the number of circles and polygons.

The next N lines, each has 3 numbers x_i, y_i and r_i which is the center of the circle and its radius ($|x_i|, |y_i| \leq 5 \times 10^4$, $0 \leq r_i \leq 5 \times 10^4$).

The next M lines, each line start with an integer p_i ($p_i \geq 1$), the number of vertices in the polygon followed by p_i pair of numbers $(x_{i,1}, y_{i,1}), \dots, (x_{i,p_i}, y_{i,p_i})$ ($|x_{i,j}|, |y_{i,j}| \leq 5 \times 10^4$). Total number of vertices on all polygons will not exceed 10^5 .

Output

Output the perimeter of the convex hull. The answer is considered correct if precision error is less than 10^{-5} .

Sample Input 1

```
3 2
-14.123000 -1.456000 5.789000
0.123000 14.456000 4.789000
-6.868686 20.456780 3.789285
1 5.123000 5.456000
2 6.879000 6.123000 7.456000 7.789000
```

Sample Output 1

```
88.888888
```