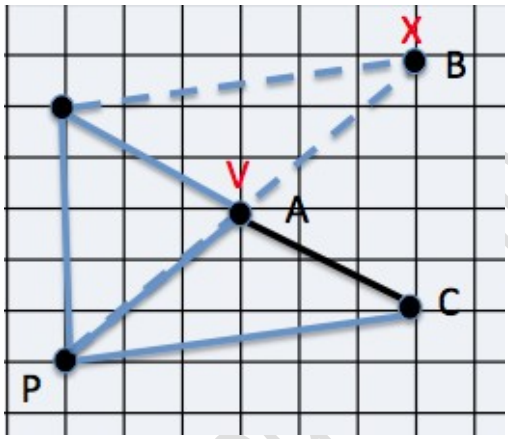
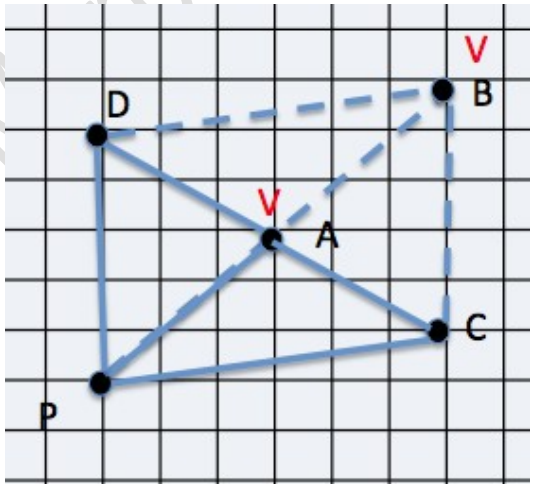
Find the maximum number of triangles

Given the initial point of Pi (xPi, yPi), and a set of N points [P1 (x1, y1), P2 (x2, y2),… , Pn(xn, yn)] and M lines [L1 (P,P), L2 (P,P)….Lm(P,P)] in an Euclidean plane, link from Pi to the given points or lines. Lines cannot cross other lines.
Here are some example scenarios:

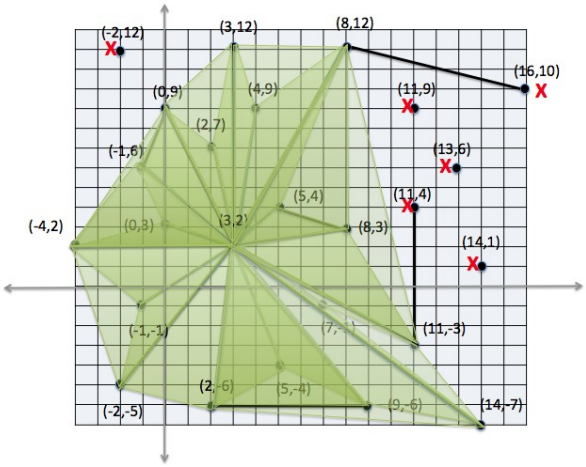
1. Parallel line scenario
   1.1. Given line AC, Point P can connect to A, but cannot cross A to connect to B.



   1.2. When no lines exist, P can connect to both A and B. The resulting figure consists of 4 triangles (PCA, PCB, PAD, PBD).



Compute the maximum number of triangles that can be created from Pi. The following is an example:



Input Format

The first line displays the total number of points and lines.
For example, n points and m lines, displays as “n m”.
The second line displays the initial point “x y”.
All subsequent lines display all the points “x y” and then all the lines “x1 y1 x2 y2”.

Output Format

The output lines must display the initial point followed by the two other points that make up each triangle.
For example, if initial point is x0 y0 and the other two connectable points are x1 y1, x2 y2, the output should be:
x0 y0 x1 y1 x2 y2.
Sort the output by the angle from the x-axis.

Sample Input

14 5
3 2
-4 2
0 3
-2 12
2 7
3 12
4 9
11 9
13 6
14 1
14 -7
7 -1
5 -4
-2 -5
-1 -1
-1 6 0 9
8 12 16 10

11 4 11 -3
2 -6 9 -6
5 4 8 3

Sample Output

3 2 8 3 5 4
3 2 8 3 8 12
3 2 5 4 8 12
3 2 8 12 4 9
3 2 8 12 3 12
3 2 4 9 3 12
3 2 3 12 2 7
3 2 3 12 0 9
3 2 2 7 0 9
3 2 0 9 -1 6
3 2 0 9 -4 2
3 2 -1 6 0 3
3 2 -1 6 -4 2
3 2 0 3 -4 2
3 2 -4 2 -1 -1
3 2 -4 2 -2 -5
3 2 -1 -1 -2 -5
3 2 -2 -5 2 -6
3 2 2 -6 5 -4
3 2 2 -6 9 -6
3 2 2 -6 14 -7
3 2 5 -4 9 -6
3 2 9 -6 14 -7
3 2 14 -7 7 -1
3 2 14 -7 11 -3
3 2 7 -1 11 -3
3 2 11 -3 8 3
3 2 11 -3 8 12