Problem 1

Points on a Line

In this particular problem, you will be given a set of points that lie on the Cartesian plane. Given two points, p_1 and p_2, determine how many points in the set lie on the line created by p_1 and p_2.

The input file (**DATA11.txt** for the first submission and **DATA12.txt** for the second submission) will contain one set of data. The first line will contain *N*, the number of points in the set, *10 <= N <= 100*. The next N lines will contain two integers each, *x* and *y*, which represent the x-coordinate and the y-coordinate of the point, *-1000 <= x, y <= 1000*. After these N lines, there will be five lines that will contain the coordinates of the points p_1 and p_2; p_1 and p_2 are not part of the original set. -1000 <= p_1, p_2 <= 1000.

The output file (**OUT11.txt** for the first submission and **OUT12.txt** for the second submission) will contain five lines of data. Each line will contain the number of points in the set that lie on the line created by p_1 and p_2.

Sample Input	Sample Output
12	2
0 0	4
-1 3	2
1 3	1
1 7	1
2 9	
3 -1	
6 0	
3 1	
5 3	
3 5	
3 8	
6 6	
2 2 0 4	
3 0 3 9	
2 2 3 3	
0 4 1 5	
3 -3 4 -2	

Sample Input Analysis

There are 2 points [(1,3) and (3,1)] from the set that lie on the line created by the two points (2,2) and (0,4).
There are 4 points [(3,8), (3,5), (3,1) and (3,-1)] from the set that lie on the line created by the two points (3,0) and (3,9).
There are 2 points [(6,6) and (0,0)] from the set that lie on the line created by the two points (2,2) and (3,3).
There is 1 point [(-1,3)] from the set that lies on the line created by the two points (0,4) and (1,5).
There is 1 point [(6,0)] from the set that lies on the line created by the two points (3,-3) and (4,-2).