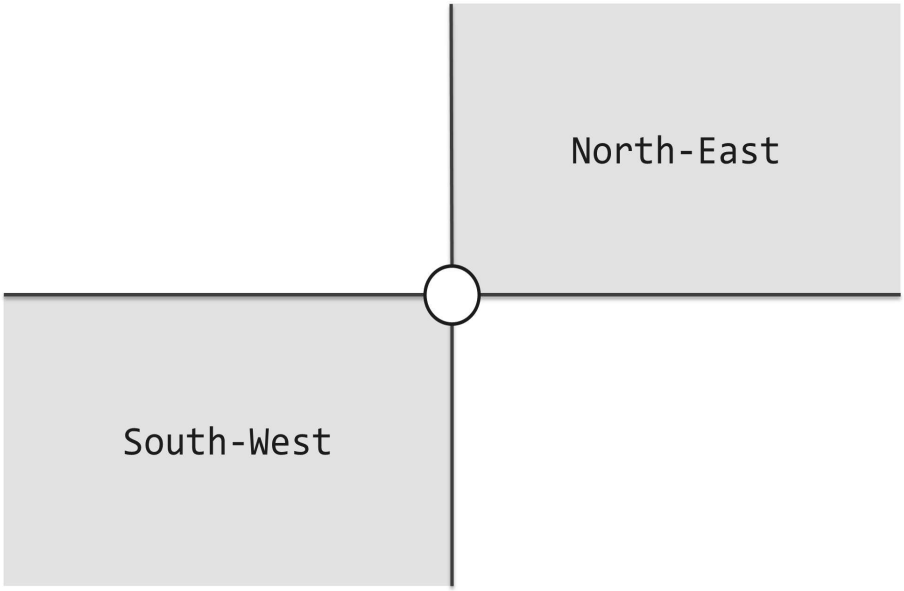
My Courses

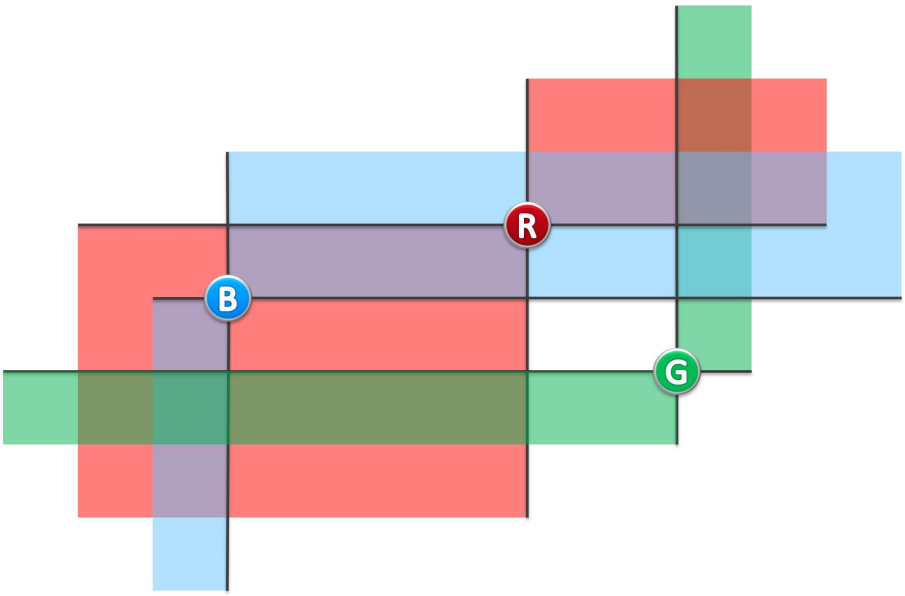
灯塔(Light House)

Description

As shown in the following figure, If another lighthouse is in gray area, they can beacon each other.



For example, in following figure, (B, R) is a pair of lighthouse which can beacon each other, while (B, G), (R, G) are NOT.



Input

1st line: N

2nd ~ (N + 1)th line: each line is X Y, means a lighthouse is on the point (X, Y).

Output

How many pairs of lighthourses can beacon each other

(For every lighthouses, X coordinates won't be the same , Y coordinates won't be the same)

Example

Input

```
3
2 2
4 3
5 1
```

Output

```
1
```

Restrictions

For 90% test cases: 1 <= n <= 3 * 10^5

For 95% test cases: 1 <= n <= 10^6

For all test cases: 1 <= n <= 4 * 10^6

For every lighthouses, X coordinates won't be the same , Y coordinates won't be the same.

1 <= x, y <= 10^8

Time: 2 sec

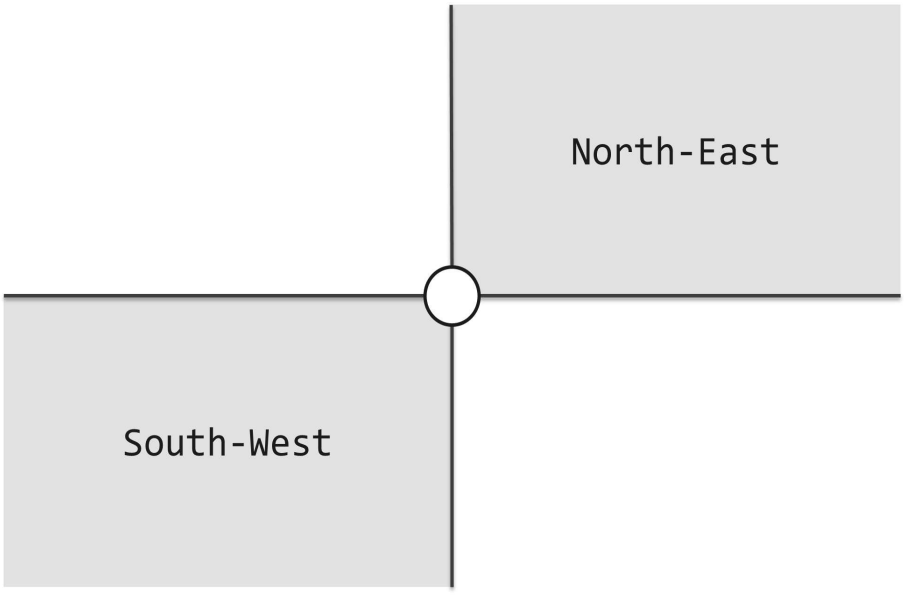
Memory: 256 MB

Hints

The range of **int** is usually [-2^{31}, 2^{31} - 1], it may be too small.

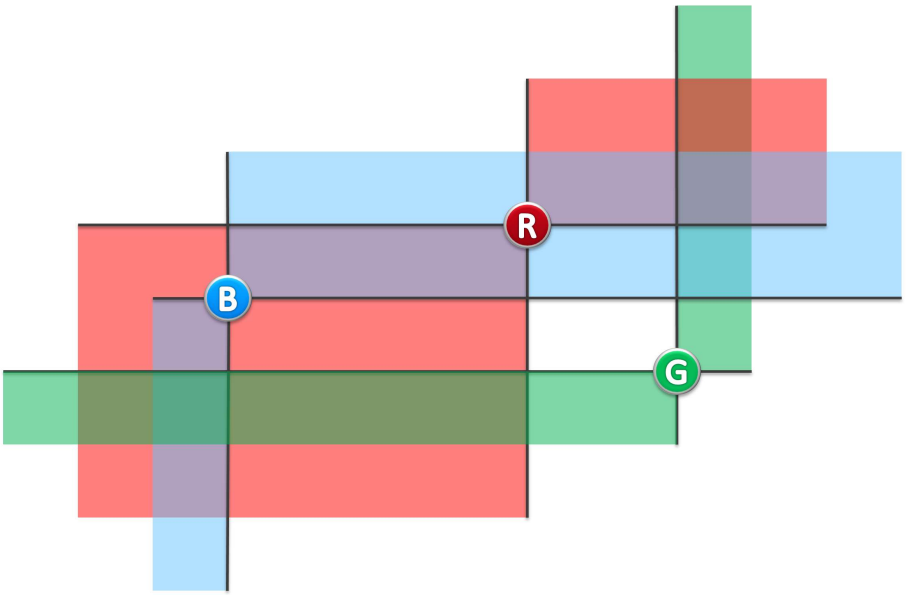
描述

海上有许多灯塔，为过路船只照明。



（图一）

如图一所示，每个灯塔都配有一盏探照灯，照亮其东北、西南两个对顶的直角区域。探照灯的功率之大，足以覆盖任何距离。灯塔本身是如此之小，可以假定它们不会彼此遮挡。



（图二）

若灯塔A、B均在对方的照亮范围内，则称它们能够照亮彼此。比如在图二的实例中，蓝、红灯塔可照亮彼此，蓝、绿灯塔则不是，红、绿灯塔也不是。

现在，对于任何一组给定的灯塔，请计算出其中有多少对灯塔能够照亮彼此。

输入

共n+1行。

第1行为1个整数n，表示灯塔的总数。

第2到n+1行每行包含2个整数x, y，分别表示各灯塔的横、纵坐标。

输出

1个整数，表示可照亮彼此的灯塔对的数量。

样例

见英文题面

限制

对于90%的测例：$1 \le n \le 3\times10^5$

对于95%的测例：$1 \le n \le 10^6$

全部测例：$1 \le n \le 4\times10^6$

灯塔的坐标x, y是整数，且不同灯塔的x, y坐标均互异

1 ≤ x, y ≤ 10^8

时间：2 sec

内存：256 MB

提示

注意机器中整型变量的范围，C/C++中的int类型通常被编译成32位整数，其范围为[-2^{31}, 2^{31} - 1]，不一定足够容纳本题的输出。
