

## Road Maintenance

**Task:** You start your new job as manager of the road maintenance depot of a district in Manhattan. Your district has the shape of a polygon and the road system has the shape of a perfect grid (so the Broadway is located in a different district). To get an overview you want to count all crossroads that you will be responsible for in future.

**Input:** The input starts with a line containing the number  $m$  of corners of the polygon. Then,  $m$  lines follow; where the  $i$ -th line contains the  $x$ - and  $y$ -coordinate of the  $i$ -th corner. The coordinates are all integers.

You may assume that the polygon is non-self-intersecting, but it is possible that more than 2 corners are located on a line.

**Output:** Output the number of crossroads that are located in your district. You are also responsible for the crossroads that lie on the boundary.

**Sample Input:**

```
5
0 1
2 0
0 -2
-1 -1
-2 0
```

**Sample Output:**

```
10
```