The great innovators of the great pyramid have another great new idea. They are now planning to build pyragrids — number of pyramid like stuffs assorted on a grid. What makes it even more interesting is the item they are making the grid with — bamboo. They have a huge field that can be treated as a 2D Cartesian plane. Let's assume the lower left corner of the field has co-ordinate $(-100, -100)$ while the upper right corner is $(100, 100)$. A number of bamboo sticks (You can safely assume that even on that land of ideas, none has tried the weird idea of bending a bamboo stick. So, the sticks will be always straight) are placed on this field. There are two mechanical restrictions which must be met while placing bamboos. Firstly, the endpoint of a bamboo stick must be put on a grid point. Second, the sticks must be either lie parallel or form a 45 degree angle with one of the axes. These sticks intersect at different points and form a criss-crossed grid of irregular shaped cells. By the way, two bamboo sticks can overlap i.e. one stick can be placed on top of another one. I forgot to tell you, these new pyargrids have triangle shaped base, unlike the square shaped bases of the original pyramid. So, you can build a pyragrid on a cell only if the cell has triangular shape. You need to determine the number of possible cells on the grid where a pyragrid can be built.

Input

First line of each test case contains an integer N ($1 \leq N \leq 100$), the number of bamboo sticks. Each of the next N lines has 4 integers, x_1, y_1, x_2 & y_2 ($-100 \leq x_1, y_1, x_2, y_2 \leq 100$), where (x_1, y_1) are the co-ordinates of one end point of the bamboo stick while (x_2, y_2) are that of the other end. A stick will have length greater than 0. The end of input will be denoted by a case with $N = 0$. This case should not be processed.

Output

For every test case except the last one, print one line of the form '`Case` X`:` Y', where X is the serial of output (starting from 1) and Y is the number of possible unique cells where a pyragrid can be placed.

Sample Input

```
3
0 0 5 0
0 0 5 5
0 5 5 0
5
0 0 2 2
1 1 3 3
0 0 2 0
1 1 2 0
2 2 2 0
0
```

Sample Output

```
Case 1: 1
Case 2: 3
```