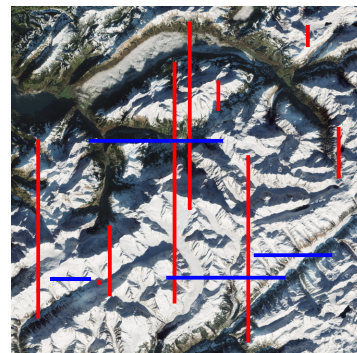


H Hasty Hiker

Time limit: 3s

You are embarking on a hiking journey through the famous Dutch mountainside. When viewed from above, the mountainside can be seen as a two-dimensional plane. On this plane, there are n horizontal or vertical roads. That is, the two endpoints of each road have either the same x -coordinate, or the same y -coordinate. Furthermore, it is guaranteed that there are no roads of length 0. Lastly, it is guaranteed that two horizontal roads never intersect, and likewise, two vertical roads never intersect.

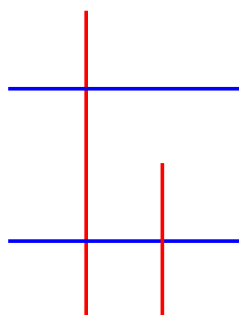


A mountain range with horizontal and vertical roads. CC BY-SA 3.0 IGO by ESA on www.esa.int, modified

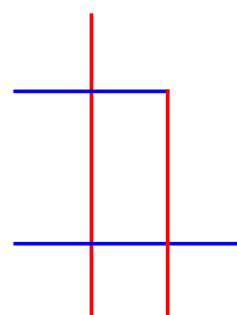
We call an ordered quadruple of roads (r_1, r_2, r_3, r_4) a *beautiful trail*, if the following conditions hold:

- all four roads r_1, r_2, r_3 and r_4 are *pairwise distinct*.
- r_1 and r_2 intersect.
- r_2 and r_3 intersect.
- r_3 and r_4 intersect.

Calculate the number of *beautiful trails* you can form with the roads given in the input.



The answer for the first sample input is 2, since there are two ways in which the roads can be ordered to form a *beautiful trail*.



The answer for the second sample input is 8, since there are 4 roads you can start on, and you can hike either clockwise or counterclockwise.

Input

The input consists of:

- One line with an integer n ($4 \leq n \leq 5000$), the number of roads.
- n lines, each with four integers x_1, y_1, x_2 , and y_2 ($|x_1|, |y_1|, |x_2|, |y_2| \leq 10^9$), indicating there is a road between (x_1, y_1) and (x_2, y_2) .
It is guaranteed that either $x_1 = x_2 \wedge y_1 < y_2$ or $x_1 < x_2 \wedge y_1 = y_2$.

It is guaranteed that two horizontal roads never intersect, and likewise, two vertical roads never intersect.

Output

Output the number of *beautiful trails*.

Sample Input 1

```
4
0 -3 0 1
-1 0 2 0
-1 -2 2 -2
1 -3 1 -1
```

Sample Output 1

```
2
```

Sample Input 2

```
4
0 -3 0 1
-1 0 1 0
-1 -2 2 -2
1 -3 1 0
```

Sample Output 2

```
8
```