Overlapping Rectangles

Time Limit: 1 Second
Memory Limit: 2048 MB

Given n rectangles on a two dimensional plane, find out the overall area covered by the rectangles.

Input

The first line of input contains a single integer n $(1 \leq n \leq 10^5)$ - number of rectangles given.

For the next n lines, each line contains four integers x_1, y_1, x_2, y_2 $(0 \leq x_1, y_1, x_2, y_2 \leq 10^9)$, describing a rectangle with lower left corner (x_1, y_1) and upper right corner (x_2, y_2).

Output

Output the area covered by the rectangles.

Sample Inputs

```
3
0 0 2 2
2 2 3 4
5 7 6 8
```

Sample Outputs

```
7
```