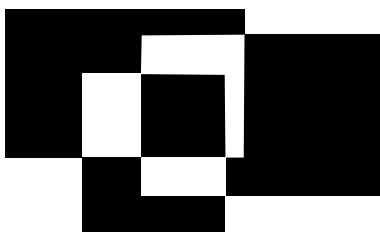# Rectangles

You are working on a new graphics system, which has added a new feature. Whenever you draw a figure, all the pixels in that figure flip from white to black, or from black to white. This image is what happens when three overlapping rectangles are drawn on a white field:

Starting with a white field, given a series of axis-aligned rectangles, how many pixels end up black?

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs.

Each test case will begin with a line with a single integer n ($1 \le n \le 100{,}000$) indicating the number of rectangles.

Each of the next n lines will have four space-separated integers $x1$, $y1$, $x2$ and $y2$ ($0 \le x1 < x2 \le 10^9$, $0 \le y1 < y2 \le 10^9$) which represent opposite corners of a rectangle. The rectangle consists of all pixels (x,y) such that $x1 \le x < x2$ and $y1 \le y < y2$, so the area of the rectangle is ($x2$ - $x1$) × ($y2$ - $y1$) pixels.

Output

Output a single integer, which is the number of pixels that are black after all of the rectangles are drawn on a white field.

Sample Input

Sample Input	Sample Output
2 0 0 4 4 1 1 3 3	12
4 0 0 10 10 1 1 11 11 2 2 12 12 3 3 13 13	72