Problem G
Gameworld Tornado
Problem ID: gameworld

The Brilliant Game Overseers (BGO) is building a brand
new game. The investors have noted that large game-
worlds is a selling point these days, so in order to ap-
pease the them, a large gameworld with lots of interest-
ing activities has been planned. In addition to a large
map showing the entire world in all its glory, a num-
ber of smaller maps in various dimensions have been
designed showing the layout of smaller features in the
Game. Because features should be spread out a little,
these maps can overlap.

Woe upon woe, the day after all maps had finally
been finished, a tornado blew through the offices of BGO, and now the master map has been
lost, as well as a number of the smaller maps. Desperate to salvage as much as possible of the
Game, you have been tasked with trying to piece together as much as possible of the original
map, using the feature maps that were left behind by the tornado. Luckily all the maps have
their coordinates marked and are axis aligned, so you figure a good start will be to find out how
large is the area (in pixels) covered by the remaining maps.

Input

The input starts with an integer n ($1 \leq n \leq 100\,000$) denoting the number of axis aligned
rectangular maps you have left. Then follows n lines representing the maps, each with four
integers x_1, y_1, x_2, y_2 where $0 \leq x_1, y_1, x_2, y_2 \leq 10^9$. x_1 and y_1 are the coordinates of the lower
left corner of the rectangle, and x_2 and y_2 are the upper right corner of the rectangle, i.e. $x_1 < x_2$
and $y_1 < y_2$.

Output

The total area of the game world covered by the remaining maps.

Sample Input 1

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2
2  2  4  4
3  3  5  5
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Sample Output 1

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7
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