Problem C. Crazy Dreamoon

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

Dreamoon likes algorithm competitions very much. But when he feels crazy because he cannot figure out any solution for any problem in a competition, he often draws many meaningless straight line segments on his calculation paper.

Dreamoon's calculation paper is special: it can be imagined as the plane with Cartesian coordinate system with range $[0, 2000] \times [0, 2000]$ for the coordinates. The grid lines are all lines of the form $x = c$ or $y = c$ for every integer c between 0 and 2000, inclusive. So, the grid contains 2000×2000 squares.

Now, Dreamoon wonders how many grid squares are crossed by at least one of the lines he drew. Please help Dreamoon find the answer. Note that touching an edge of a grid square is not considered as crossing this square.

Input

The first line of input contains an integer N denoting the number of lines Dreamoon draw. The i-th line of following N lines contains four integers $x_{i1}, y_{i1}, x_{i2}, y_{i2}$, denoting that the i-th segment Dreamoon drew is a straight line segment between points (x_{i1}, y_{i1}) and (x_{i2}, y_{i2}).

- $1 \le N \le 2 \times 10^3$
- $0 \le x_{i1}, y_{i1}, x_{i2}, y_{i2} \le 2 \times 10^3$
- the lengths of all line segments in input are non-zero

Output

Output one integer on a single line: how many grid squares are crossed by at least one of the line segments which Dreamoon drew.

Examples

standard input	standard output
3 0 0 5 5 0 5 5 0 0 5 5 0	9
1 0 0 4 3	6
2 0 0 4 3 1 0 3 3	6