A Mindbending Scenario

Imagine a universe far different to the one we know. One where where people can walk through walls, where politicians don't lie, where the rules of physics itself are bent on a daily basis. Imagine how strange it would be to land in that universe, having to adjust to entirely new laws of reality, and having to integrate yourself into sentient cultures far beyond human comprehension.

Now, imagine that everything in this universe was suddenly destroyed in a cataclysmic explosion, leaving nothing but two rectangles on an endless plane. These two rectangles have their corners at integer co-ordinates (rational numbers having been destroyed). Your task is to discover the total area of the plane which is covered by these rectangles.

Input

The input file will consist of two lines. Each line will be of the form $x_1 y_1 x_2 y_2$, describing the bottom-left and top-right corners of one rectangle. You are guaranteed that $0 \leq x_1 < x_2 \leq 10,000$, and $0 \leq y_1 < y_2 \leq 10,000$. (That is, each rectangle is at least one unit square in size.)

We strongly recommend using the solution templates provided below. These templates will ensure that you handle the input and output correctly.

Output

Your output file should consist of a single integer: the total area covered by rectangles. (Remember - the rectangles may overlap!)

Sample Input

```
1 1 3 4
2 3 6 7
```

Sample Output

```
21
```

The sample data describes two rectangles. The total area covered by the rectangles is 21 unit squares. The next page has a diagram showing you the rectangles.
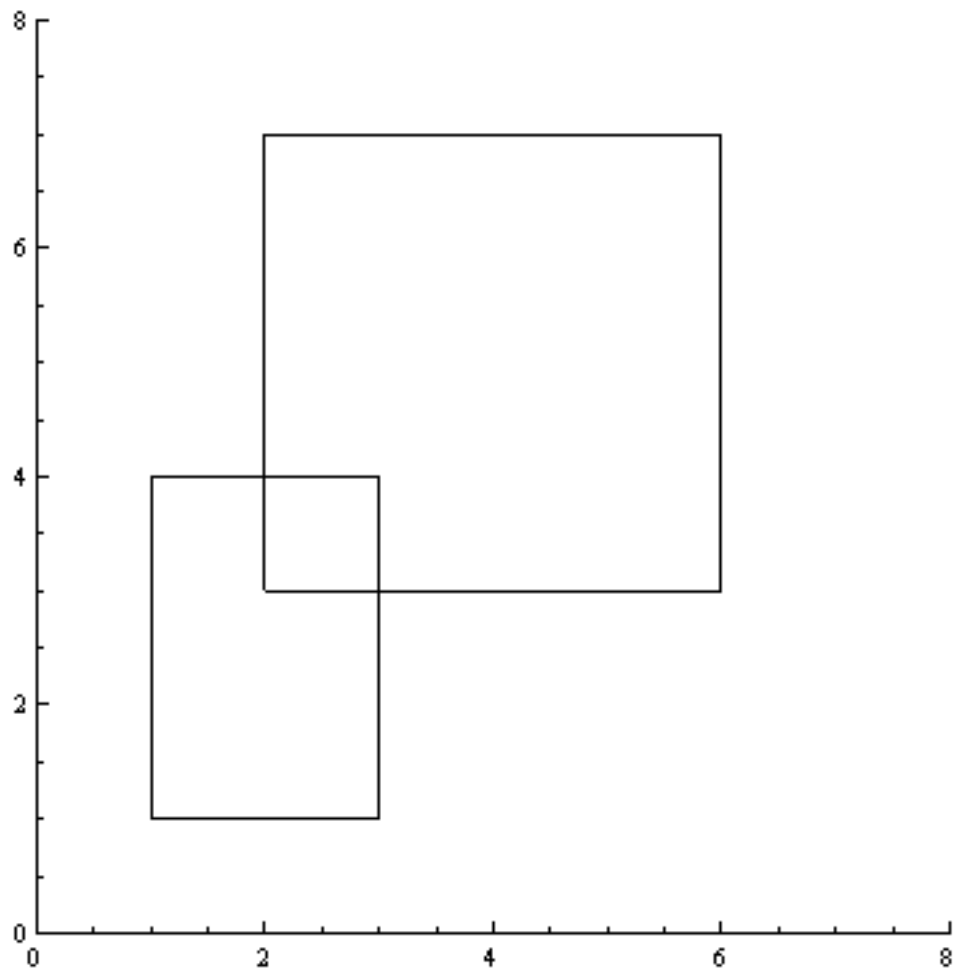
Figure 1: The two rectangles in the sample input