Problem 8: Window Overlap - A TESTING PROBLEM

Overview

Window-based desktops are now the norm and computer memory is cheap, but once upon a time it was crucial to be aware of how a newly opened window would (or would not) overlap the existing windows on a desktop. Similar issues continue to exist today for applications that combine big data with visualization software. In this problem, you will determine how much “new area” is covered by a newly opened window.

Problem

In this problem, you will be given a series of windows. You are to determine the total area of a “new” window that is covering previously uncovered area. Consider the example below:

The new window (the one with the darker boarder) has a total area of 3750 (75x50), but it overlaps three existing windows. The areas of overlap are 625, 225, and 375; thus 1225 square units of the background were previously covered. Thus, this window covers 2525 square units of previously uncovered background.

-over-
Input

A window will be described by four integers separated by spaces giving its upper-left-x-coordinate, upper-left-y-coordinate, width, and height. Coordinates will be between 0 and 1,000,000 inclusive. Widths and heights will be between 1 and 1,000,000 inclusive, but will always be such that the entire window fits on a 1,000,000 x 1,000,000 desktop. The input will consist of a single line of text indicating a series of at least one window. Windows will be separated by spaces. Within a list of windows, the first window is always assumed to be the newly created window; the order of the other windows does not matter.

Output

The output consists of a single integer indicating the area of the desktop previously uncovered, but covered by the newly created (first in the input) window.

Example 1 (from the figure on the previous page)

Input

60 40 75 50 110 30 50 35 65 70 15 15 110 75 30 35 90 100 30 20

Output

2525

Example 2

Input

100 100 40 40 50 20 40 280

Output

160

About TESTING PROBLEMS

YOU ARE NOT TO WRITE A SOLUTION TO THIS PROBLEM!!!!

Rather, a flawed solution to this problem exists on the web page referenced by the submission program on your desktop. You must determine an input set for which our solution gives the wrong answer. You will also need to supply the correct output for the input that you submit. Once you have determined these, you must fill in the fields on the web page and submit your answer.