Homogeneous area

Given two rectangles You are to calculate the area they occupy.

Input

There is unknown number of tests. Each test consist of eight integers x_{A1} y_{A1} x_{A2} y_{A2} x_{B1} y_{B1} x_{B2} y_{B2} ($|all|<=10^6$).

Input ends when all numbers equal 0.

Output

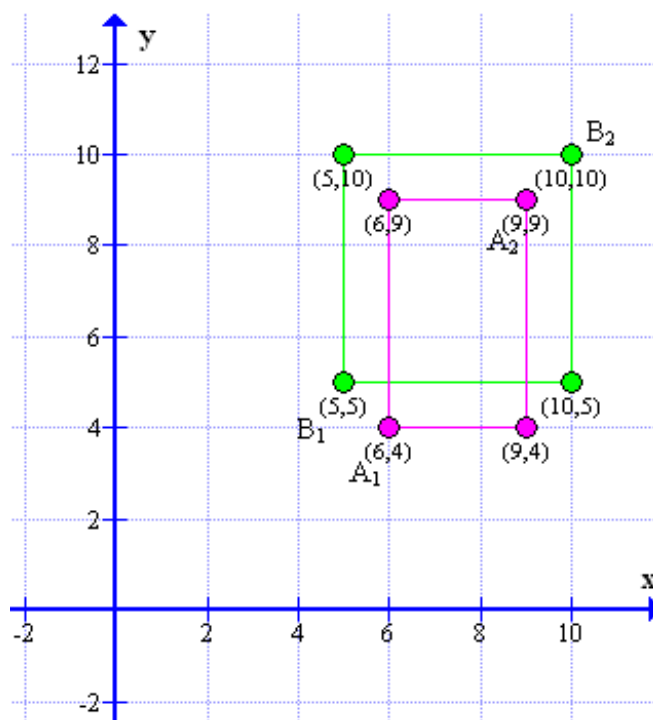For each test You should print the area these two rectangles occupy.

Example

Input:
6 4 9 9 5 5 10 10
10 5 5 10 9 9 6 4
0 0 0 0 0 0 0 0
Output:
28
28

Illustration to the 1st test

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