CP #21: Free spots

Write a program, that, given a board, and a list of rectangular sub-portions of the board, returns the number of positions that belong to no sub-portion

Input Format

The input consists of a series of test sets separated by blank lines. A test set starts with a line with three numbers W, H and N, giving respectively the width, the height and the number of sub-boards. These values satisfy the following constraints: 1 ≤ W, H ≤ 500 and 0 ≤ N ≤ 99. Follow then N lines, composed of four integers X1, Y1, X2, Y2, such that (X1, Y1) and (X2, Y2) are the positions of two opposite corners of a sub-board. These values satisfy the following constraints: 1 ≤ X1, X2 ≤ W and 1 ≤ Y1, Y2 ≤ H. The end of the input is reached when the numbers W, H and N are equal to 0.

Output Format

The program shall output each result on a line by its own, following the format given in the sample output.

Sample Input 0

```
1 1 1
1 1 1 1

2 2 2
1 1 1 2
1 1 2 1

493 182 3
349 148 363 146
241 123 443 147
303 124 293 17

0 0 0
```

Sample Output 0

```
There is no empty spots.
There is one empty spot.
There are 83470 empty spots.
```