PAINTING

DESCRIPTION

We are going to cover a wall (whose area is r\*c) with m different kinds of oil paint ( that is also m kinds of colors ). In order to simplify the problem, we will regard the wall as a set of r\*c small squares. The area of one small square is 1 and a small square could be expressed as (x , y) (1<=x<=r, 1<=y<=c).

So every time when we are painting some selected area, we are covering the small squares in that area with a particular color.

Your task is to calculate the number of colors which are completely covered after m times of painting.

For example, given a rectangular area of a upper left corner (x1, y1) and a lower right corner (x2, y2)

INPUT

Multiple test cases, end with EOF.

In every test case:

In the first line, there will be 3 integers: r c m. r and c are the length and width of the wall , and m is the number of colors of the oil paint. Each type of the oil paints has its own different color.  
 Then there will be m lines followed, and the ith line has 4 integers: x1 y1 x2 y2, which means that we will cover the rectangular area of a upper left corner (x1, y1) and a lower right corner (x2, y2) with the ith color.

OUTPUT

One number, how many colors are completely covered after all the m rectangular areas are painted .

Sample Input

3 3 3

1 1 2 2

1 3 3 3

1 1 3 3

Sample Output

2