Problem BEHIND: Behind the Screens

Everybody knows the evil company. You know which. The one that must not be named. The one that makes money from what *they* call operating systems. But be careful, they are watching you. Yes, you. Just from right behind the screens. By having software on so many computers it is quite easy for them to observe all of you. Believe me, I know for sure.

But there is a way to protect you. We will beat them with their very own weapons. With windows. Yes, trust me, it's just that easy. We know that they are watching us from behind the screens, but obviously not even they can look through the windows, can they? So let's just cover up our entire screen with windows, to hide ourselves from their searching eyes. But to be really sure, we should always calculate how good they can still see us and how much of our screens is still uncovered.

Input

The input consists only of one test case. The first line contains two numbers W and H ($1 \leq W, H \leq 30,000$) giving the width and height of our screen in pixels. The top left corner of our screen has the coordinates $(0,0)$. The bottom right corner is labeled $(W - 1, H - 1)$. The second line of the input contains a single number n ($0 \leq n \leq 15$) that gives the number of windows. Each of the next n lines consists of four integer numbers x, y, w, h that specify the position and size of a window. Here (x, y) with $-30,000 \leq x, y \leq 30,000$ are the coordinates of the top left corner of the window. This corner, namely (x, y), is covered by the window, of course. w and h ($1 \leq w, h \leq 30,000$) are the width and height, respectively, of the window (again in pixels).

Output

The number of pixels that are not covered by windows, followed by a single newline.

Sample Input 1

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100 50
2
80 -4 200 200
70 10 20 20
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Sample Output 1

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3800
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