The Pumpkin Patch

**[ EASY] [ TPP ]**

**Problem:**

Hagrid, Hogwarts’ gamekeeper, has planted enormous pumpkins in his garden. They are so huge that they have overgrown the available space to him, and so he has to cut them down to bring them to the required area, as per orders from the Headmistress, Minerva McGonagall.

The plot of land can be represented as a **rectangle** in *xy* plane, with its lower left corner at **(0, 0)**, and its upper right corner at **(X, Y)**.

Hagrid performs the operation by plotting **N** points into the field. The coordinate of the i-th point () is ().

Then, he created a sequence **A** of length **N**, and for each ), he trimmed some region within the rectangular plot as follows:

* If = 1 : he trimmed the plot satisfying within the rectangle.
* If = 2 : he trimmed the plot satisfying within the rectangle.
* If = 3 : he trimmed the plot satisfying within the rectangle.
* If = 4 : he trimmed the plot satisfying within the rectangle.

Now, Hagrid wants to make sure that after performing this task, his plot is within the required limits. So, he asks you to find the area of the remaining plot. Can you help him do this task?

**Input:**

* The first line contains three space separated integers : X, Y, N
* The next N lines contain 3 space separated integers each: ,

**Output:**

Print the area of the field after all operations have been performed.

**Constraints:**

**Example:**

**Input:**

5 4 2

2 1 1

3 3 4

**Output:**

9

**Explanation:**

The plot lies between (0, 0) and (5, 4)

For the first operation, Hagrid has point (2, 1) and operation number 1. So, he trims all the area with x < 2 (As per operations table).

Next, he has point (3, 3) and operation number 4.

So, he trims all the area with y > 3.

At last, he is left with a plot of area 9.

**Problem Setter:**

Shivam Rana