Bane of Arthropods

Time limit: 0.6s **Memory limit:** 128M

Leon has created a cute little robot spider pet! //(::w::)\
Instead of generating an intricate pattern for its web, it simply interweaves R rows with C columns of silk. It starts with an empty web; a full web consists of $R + C$ strands of silk forming a grid-like pattern.
Please help implement some of its functions, and you might be rewarded (with points)!

F1: *Robo-Spider* generates silk somehow (don't ask me, I'm just the programmer). It weaves in consecutive *rows* of silk, filling in all *rows* from A to B (inclusive), if they don't already exist.
F2: Same as **F1**, but for *columns*.
F3: Consecutive *rows* of silk snap (blame the chemist)! Only existing strands of silk that make up *rows* A to B (inclusive) are affected.
F4: Same as **F3**, but for *columns*.
F5: How much of the web is exposed? Please determine the total area not covered by the web.
F6: How optimal is the web? Please determine the area of the hole with the maximum area in the web.

Input Specification

The first line contains three integers: R (the number of rows), C (the number of columns), and Q (the number of queries).
The following Q lines each begin with a function number, F. For just **F1** to **F4**, A and B follow.

Output Specification

For each **F5** and **F6**, output the answer on its own line.

Constraints

$1 \leq F \leq 6$
$1 \leq A \leq B \leq R$ or C

Subtask	Percentage	Constraints
1	20	$1 \leq R, C, Q \leq 100$
2	20	$1 \leq R, C, Q \leq 1\,000$
3	60	$1 \leq R, C, Q \leq 200\,000$

Sample Input

```
10 10 7
6
1 4 6
5
2 7 8
6
3 5 5
5
```

Sample Output

```
100
70
24
64
```

Diagram

A picture is worth a thousand words.

```
 \ 1 2 3 4 5 6 7 8 9 10
 1
 2
 3
 4
 5         100
 6
 7
 8
 9
10
```

```
 \ 1 2 3 4 5 6 7 8 9 10
 1
 2          30
 3
 4 --------------------
 5 --------------------    = 70
 6 --------------------
 7
 8          40
 9
10
```

```
 \ 1 2 3 4 5 6 7 8 9 10
 1             | |
 2             | |
 3             | |
 4 ------------|-------
 5 --------------|-----
 6 ------------|-------
 7             | |
 8      24     | |
 9             | |
10             | |
```

```
 \ 1 2 3 4 5 6 7 8 9 10
 1             | |
 2      18     | |  6
 3             | |
 4 ------------|-------
 5       6     | |  2      = 64
 6 ------------|-------
 7             | |
 8      24     | |  8
```

```
 9            | |
10            | |
```