

## Problem A. Chino's homework

Chimame March is about to go to high school and will take a graduation photo. So they plan to trim their hair and groom themselves.

Megu asked Chiya and Syaro for help, Maya asked Rize for help, and Chino asked Cocoa for help.

While Cocoa was trimming Chino's hair, the two were discussing Chino's desire to go to school. Cocoa hopes Chino can go to her high school, and Chino intends to do so. But Chino joked: "Sure enough, it's better to go to a different school." As a result, Cocoa was surprised and suddenly shook her hand. Chino's hair was cut like this:



Chino was angry. She took Cocoa's hand and asked her to cooperate with herself to complete a homework assigned by the teacher:

Chino's teacher gave her a chessboard of  $n \times m$ . Her teacher asked both players to use  $u$  and  $v$  pieces respectively (it could be assumed that Chino would use  $u$  chess pieces and Cocoa would use  $v$  chess pieces, **both of them didn't have to use all of these chess pieces.**), and arbitrarily placed them in this chessboard grid. And **they could only put at most one chess piece in each grid**. Then calculated the maximum points according to the following rules, and Chino wrote the result in the workbook and returned it to the teacher.

- Chino was an introvert. Every time she placed a pawn, then 12 points are added. But for all her chess pieces, every time there was a neighbor (whether it was her own or the opponent's), 3 points are subtracted.
- Cocoa was an extrovert. Every time she places a piece, then 4 points are added. And for all her chess pieces, every time there was a neighbor (whether it was her own or the opponent's), another 2 points are added.
- Neighbors refer to the chess pieces in the 4 grids up, down, left and right of this certain grid.

Cocoa is good at calculations. She thought this question was too simple. She planed to continue to test Chino's mathematics ability (so that her math scores could be better and she could go to Cocoa's own school). She asked Chino: "How many ways are there to achieve the maximum points?" (Assuming that under the two ways, the sets of coordinates for Chino's placement of chess pieces are  $S_1, S'_1$ , and Cocoa's are  $S_2, S'_2$ . The two ways are different if and only if  $S_1$  is different from  $S'_1$  or  $S_2$

is different from  $S'_2$  ).

Chino felt that the previous question was difficult enough, but Cocoa came up with a more difficult one. She hopes to ask you to solve these two problems. Can you help her?

### Input

The three integers  $n, m$  and  $Q$  ( $1 \leq n, m \leq 5, Q \leq 49$ ) in the first line are separated by spaces.  $Q$  means there are  $Q$  queries.

Next  $Q$  line, each line two integers  $u$  and  $v$  ( $0 \leq u, v \leq 6$ ).

### Output

For each query, output two integers on a line, separated by spaces. The two numbers represent the answer to the teacher's question and the answer to the Cocoa's question.

### Example

standard input	standard output
1 2 3	15 2
1 1	18 1
2 0	0 1
0 0	

standard input	standard output
2 3 1	24 8
1 2	

### Hint

For the 1st query of the 1st sample, here are the following two ways:

Chino	Cocoa
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Cocoa	Chino
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For the 3rd query, putting nothing is also a way.

For the 2nd sample, two of eight methods are as follows:

Chino		
	Cocoa	Cocoa

Chino		Cocoa
		Cocoa