

# Land Occupation

## Problem ID: landoccupy

In the year 2030, Elon Sumk and Jeff Sozeb landed in the Mars successfully. They both chose the same flat area where they could land their spaceship. The shape of this area can be modelled as a rectangular board, divided into  $r$  rows and  $c$  columns. The rows are numbered from 1 to  $r$  from North to South, the columns are numbered from 1 to  $c$  from West to East. The cell in the  $u^{th}$  row and  $v^{th}$  column is denoted by  $(u, v)$ .

Elon Sumk landed in  $(r_E, c_E)$ , Jeff Sozeb landed in  $(r_J, c_J)$ . After the successful landings, they started to conquer more land. Due to the limited technology, they could only conquer the land inside this rectangular flat area. On Mars, Manhattan distance is used to measure the distance between cells.

Elon Sumk and Jeff Sozeb both agreed to conquer cells of land according to the following rules:

- If a cell is strictly closer to Elon Sumk's landing location than to Jeff Sozeb's, it would belong to Elon Sumk.
- If a cell is strictly closer to Jeff Sozeb's landing location than to Elon Sumk's, it would belong to Jeff Sozeb.
- If the two distances between a cell and two landing locations are equal, no one would conquer it.

In this problem, you are given the size of the area  $r$  and  $c$ , the number of cells belonging to Elon Sumk  $E$  and the number of cells belonging to Jeff Sozeb  $J$ , your task is to identify their landing locations.

Recall that the Manhattan distance between two cells  $(x_1, y_1)$  and  $(x_2, y_2)$  is  $|x_1 - x_2| + |y_1 - y_2|$ .

### Input

The first line contains an integer  $t$  — the number of test cases. Then  $t$  test cases follow.

Each test case is presented in one line, with four positive integers  $r, c, E$  and  $J$  ( $1 \leq r, c \leq 250, 2 \leq E + J \leq r \cdot c$ ). It is guaranteed that the sum of  $r \cdot c$  over all test cases does not exceed 625 000.

### Output

For each test case, you should print on one line four integers  $r_E, c_E, r_J$  and  $c_J$  representing the landing locations of Elon Sumk and Jeff Sozeb, or  $-1 -1 -1 -1$  if there is no solution.

If there are multiple solutions, you can output any of them.

## Explanation of the sample

The picture below shows the first sample. Cells occupied by Elon Sumk are colored gray, cells occupied by Jeff Sozeb are colored black. White cells are unoccupied.

J		
		E

### Sample Input 1

1	3 3 1 1
3 3 3 3	

### Sample Output 1