

World Finals 2008

- A. Juice
- B. Ping Pong Balls
- C. Mine Layer
- D. Bridge Builders
- E. The Year of Code Jam

[Contest Analysis](#)  
[Questions asked](#)

Submissions

Juice	
3pt	Not attempted 97/97 users correct (100%)
10pt	Not attempted 74/93 users correct (80%)
Ping Pong Balls	
4pt	Not attempted 92/97 users correct (95%)
11pt	Not attempted 18/32 users correct (56%)
Mine Layer	
4pt	Not attempted 85/88 users correct (97%)
13pt	Not attempted 14/33 users correct (42%)
Bridge Builders	
8pt	Not attempted 69/73 users correct (95%)
17pt	Not attempted 20/31 users correct (65%)
The Year of Code Jam	
7pt	Not attempted 47/68 users correct (69%)
23pt	Not attempted 6/9 users correct (67%)

Top Scores

ACRush	89
Innovative.Cat	89
bmerry	87
pmnox	76
yuhch123	66
gawry	66
Eryx	60
mystic	60
ploh	60
blueblimp	59

Problem C. Mine Layer

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input  
4 points

Solve C-small

Large input  
13 points

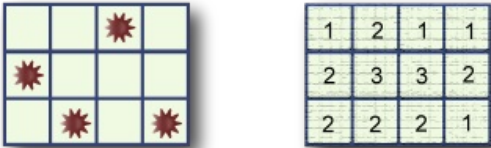
Solve C-large

Problem

MineLayer is a Minesweeper-like puzzle game played on an **R** by **C** grid. Each square in the grid either has one mine or no mines at all. A MineLayer puzzle consists of a grid of numbers, each of which indicates the total number of mines in all adjacent squares and in the square underneath. The numbers will thus range from zero to nine.

The objective of MineLayer is to figure out a layout of the mines in the grid that matches the given clues.

Below is a typical 3 by 4 grid. The original layout is on the left, and the puzzle on the right.



Since there may be many solutions, your task is to write a program that outputs the maximum possible number of mines in the middle row. The number of rows will always be odd, and there will always be at least one solution to the puzzle.

Input

The first line of input gives the number of cases, **N**. **N** test cases follow.

The first line of each case contains two space-separated numbers: **R**, the number of rows, and **C**, the number of columns. **R** is always an odd integer. Each of the next **R** lines contains **C** space-separated numbers that denote the clues of that row.

Output

For each test case, output one line containing "Case #X: Y", where X is the 1-based case number, and Y is the maximum possible number of mines in the middle row of a grid that satisfies the given constraints.

Limits

$1 \leq N \leq 50$ .  
Each puzzle is guaranteed to have at least one solution.

Small dataset

$R = 3$  or  $R = 5$ .  
 $3 \leq C \leq 5$ .

Large dataset

**R** is an odd number between 3 and 49, inclusive.  
 $3 \leq C \leq 49$ .

Sample

Input	Output
2	Case #1: 1
3 3	Case #2: 1
2 2 1	
3 4 3	
2 3 2	
3 4	

```
1 2 1 1
2 3 3 2
2 2 2 1
```

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