

6500 Boxes

A grid with m rows and n columns is given. Some cells of the grid are occupied by boxes. If all the boxes of the grid move downwards until they cannot move any further, the boxes will be stacked at the bottom of the grid. An example is shown in Figure 1. In Figure 1(a), there is a grid with 5 rows and 4 columns, and 7 cells are occupied by boxes. After moving every box downwards as much as possible, the boxes are stacked at the bottom of the grid as shown in Figure 1(b).

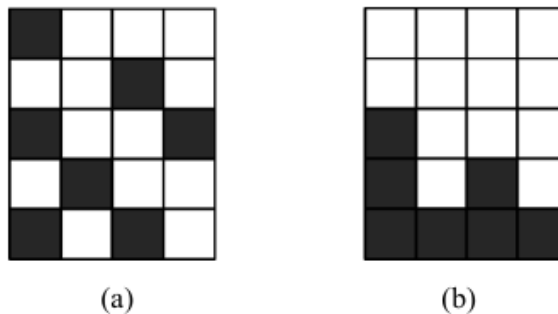


Figure 1. A grid with 7 boxes

The moving distance of a box is defined to be the distance the box has traveled until all the boxes are stacked at the bottom of the grid. For example, the moving distance of the highest box at the leftmost column is 2. In this problem, we are interested in the total moving distance of all boxes, that is, the sum of the moving distances of all boxes. In the above example, the total moving distance of the 7 boxes is 8.

You are to calculate the total moving distance of boxes for a given grid.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case starts with a line containing two integers, m and n ($1 \leq m, n \leq 100$), where m is the number of rows and n is the number of columns of the grid. In the next m lines, each line contains n integers representing a row of the grid. The information of a grid is given from top row to bottom row. If a cell is occupied by a box, it is represented by the integer '1', otherwise it is represented by the integer '0'. There is a single space between two integers in the same line.

Output

Your program is to write to standard output. Print exactly one line for each test case. The line should contain the total moving distance of the boxes for the given grid.

The following shows sample input and output for three test cases.

Sample Input

```
3
5 4
1 0 0 0
```

```
0 0 1 0
1 0 0 1
0 1 0 0
1 0 1 0
3 3
1 1 1
1 1 1
0 0 0
5 6
1 0 1 1 0 1
0 0 0 0 0 0
1 1 1 0 0 0
0 0 0 1 1 1
0 1 0 1 0 1
```

Sample Output

```
8
6
16
```