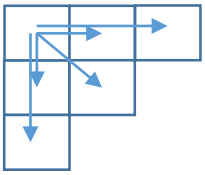
Problem 1 Finding Shortest Path

Given a m x n table with integer number, your task is to find the shortest path from the top left to the bottom right. At each step, you can move to the right, bottom, or diagonal direction (you can move to right or bottom 1 or 2 block and diagonal direction only 1 block), as shown in the following figure:



And the weight of the path is the sum of integers in the all visited cells.

2	-1	-10	43	9
1	3	15	3	8
2	-2	12	6	5
3	-10	3	3	3
4	1	43	-8	1

4	-10	3
9	-2	4
5	2	2

For these two tables, the weight of the shortest paths (red arrows) are -17 and -6

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 consists of one table size line and the table. In the first line, there are two positive integers m and n($1 \le m \le 10, 1 \le n \le 100$), separated by a space, and m is the number of rows and n is the number of columns. From the next line, each line represents a row of the table, and cells are separated by a space.

Output

Your program is to write to standard output. Print exactly one line for each test case. The line should contain the weight of the shortest path, as described above.

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

Sample Input	Output for the Sample Input
2 5 5 2 -1 -10 43 9 1 3 15 3 8 2 -2 12 6 5 3 -10 3 3 3 4 1 43 -8 1 3 3 4 -10 3 9 -2 4 5 2 2	-17 -6