**Priyanka loves Binary**

Priyanka likes Binary Numbers very much and she knows that binary numbers contains only 0 and 1.She had a random pattern of the binary numbers but she was not satisfied with the pattern .Therefore, she decided to replace some of the numbers to make a beautiful pattern. However, she is a very busy girl and has a lot of other work to do, so she decided to ask for your help.

Now Priyanka wants the numbers to be placed in such a way that each number of different type must be adjacent each other i.e 0 must be adjacent to 1 and vice versa. **Two numbers are adjacent if they share a side.** Now Priyanka has asked for your help in making that pattern of number.

You can replace any given number with the other. But there is a cost for each replacement: if you replace a ‘1’ with a ‘0’, the cost is **5** units and if you replace a ‘0’ with a ‘1’, the cost is **3** units.

Help her by making the pattern special with minimum cost.

**Input**

* The first line of the input contains a single integer **T** denoting the number of test cases. The description of **T** test cases follows.
* The first line of each test case contains two space-separated integers **N** and **M**, where **N** × **M** are the dimensions of pattern.
* Each of the next **N** lines contains a string of length **M**.

**Output**

For each test case, output the minimum cost required to make the pattern special.

**Constraints**

* 1 ≤ **T** ≤ 100
* 1 ≤ **N, M** ≤ 100
* each input consists only of numbers 0 and 1 denoting binary numbers.

**Example**

**Input:**

2

4 5

10101

01010

10101

01010

2 3

110

001

**Output:**

0

8

**Explanation**

**Example case 1: Since all the numbers are correctly positioned. Hence, there is no need for any replacement. Thus, the total cost is 0.**

**Example case 2: we can replace ‘1’ with ‘0’ in the first position of first line and first 0 with 1 in the second line making 010 and 101 .Thus ,total cost=5+3=8.**