Lex Returns

Filename: lex

The Problem

Lex Luther has liberated Kryptonian crystal technology from that selfish narcissist, Superman. As we all know, Kryptonian technology relies on crystals that can be made to grow into anything simply by adding water. Lex has generously decided to solve the Earth's overpopulation problem by using the crystals to create new landmasses in the ocean. He needs your help to determine how much new land will be created by placing a crystal at a certain point.

The Input

The input will consist of several cases. Each case will describe a section of the planet as a matrix. Each cell (or square) in this matrix will represent 5 square miles of land or water, denoted by '.' Or '~' respectively. There will also be a cell describing the crystal's entry point, 'X', which can be considered a 5 square mile unit of water as well.

The crystal will create land in its initial space of water, as well as any touching space of water. Those spaces will trigger any spaces touching them and so on. Touching in this case is defined as connected by cardinal direction, NOT diagonally.

The first line of the input will contain an integer, *c*, alone on a line to describe the number of cases to analyze. Each case begins with two integers, *m* and *n*, on a line separated by a space. These two integers describe the size of the matrix by number of rows and columns, respectively. The next *m* lines will each contain a string of *n* characters that will only contain the three symbols described above. There will always be one and only one entry point in the input of each case.

You will be guaranteed $0<c<1{,}000$ and $0<m,n<100$.

The Output

For each case, you will output a single integer that describes the square mileage of land created in that case.

Sample Input

```
2
5 5
....~
...~~
....~
...~~
.X~~.
4 6
~~~~~.
~.~~..
~~~X..
..~~~~
```

Sample Output

```
45
80
```