CCC '08 S3 - Maze

Time Limit: 1.0s **Memory Limit:** 256M

Canadian Computing Competition: 2008 Stage 1, Senior #3

In order to make a few dollars, you have decided to become part of a scientific experiment. You are fed lots of pizza, then more pizza and then you are asked to find your way across the city on a scooter powered only by pizza. Of course, the city has lots of intersections, and these intersections are very controlled. Some intersections are forbidden for you to enter; some only let you move north/south as you leave the intersection; others let you move only east/west as you leave the intersection; and the rest let you go in any compass direction (north, south, east or west).

Thankfully your scientific friends have given you a map of the city (on the back of a pizza box), with an arrangement of symbols indicating how you can move around the city. Specifically, there are 4 different symbols on the box:

- The symbol `+` indicates we can move in any direction (north/south/east/west) from this location.
- The symbol `-` indicates we can move only east or west from this location.
- The symbol `|` indicates we can move only north or south from this location.
- The symbol `*` indicates we cannot occupy this location.

Your task is to determine how many intersections you must pass through to move from the north-west corner of the city to the south-east corner of the city.

Input Specification

The input begins with a number t $(1 \leq t \leq 10)$ on its own line, which indicates how many different cases are contained in this file. Each case begins with a number r on one line, followed by a number c on the next line $(1 \leq r, c \leq 20)$. The next r lines contain c characters, where each character is one of {`+`, `*`, `-`, `|`}. You may assume the north-west corner of the city can be occupied (i.e., it will not be marked with `*`).

Output Specification

The output will be t lines long, with one integer per line. The integer on line i $(1 \leq i \leq t)$ indicates the minimum number of intersections required to pass through as you move from the north-west corner of the city to the south-east corner of the city. If there is no way to get from the north-west corner to the south-east corner, output `-1` for that test case.

Sample Input

```
3
2
2
-|
*+
3
5
+||*+
+++|+
**--+
2
3
+*+
+*+
```

Output for Sample Input

```
3
7
-1
```