

# CCC '08 S3 - Maze

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**Time Limit:** 1.0s    **Memory Limit:** 64M

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## 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

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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

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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

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3  
2  
2  
-|  
\*+  
3  
5  
+||\*+  
+++|+  
\*\*-++  
2  
3  
+\*+  
+\*+

## Output for Sample Input

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3  
7  
-1