On an infinite plane, a robot initially stands at (0, 0) and faces north. Note that:

* The **north direction** is the positive direction of the y-axis.
* The **south direction** is the negative direction of the y-axis.
* The **east direction** is the positive direction of the x-axis.
* The **west direction** is the negative direction of the x-axis.

The robot can receive one of three instructions:

* "G": go straight 1 unit.
* "L": turn 90 degrees to the left (i.e., anti-clockwise direction).
* "R": turn 90 degrees to the right (i.e., clockwise direction).

The robot performs the instructions given in order, and repeats them forever.

Return true if and only if there exists a circle in the plane such that the robot never leaves the circle.

**Example 1:**

Input: instructions = "GGLLGG"  
Output: true  
Explanation: The robot is initially at (0, 0) facing the north direction.  
"G": move one step. Position: (0, 1). Direction: North.  
"G": move one step. Position: (0, 2). Direction: North.  
"L": turn 90 degrees anti-clockwise. Position: (0, 2). Direction: West.  
"L": turn 90 degrees anti-clockwise. Position: (0, 2). Direction: South.  
"G": move one step. Position: (0, 1). Direction: South.  
"G": move one step. Position: (0, 0). Direction: South.  
Repeating the instructions, the robot goes into the cycle: (0, 0) --> (0, 1) --> (0, 2) --> (0, 1) --> (0, 0).  
Based on that, we return true.

**Example 2:**

Input: instructions = "GG"  
Output: false  
Explanation: The robot is initially at (0, 0) facing the north direction.  
"G": move one step. Position: (0, 1). Direction: North.  
"G": move one step. Position: (0, 2). Direction: North.  
Repeating the instructions, keeps advancing in the north direction and does not go into cycles.  
Based on that, we return false.

**Example 3:**

Input: instructions = "GL"  
Output: true  
Explanation: The robot is initially at (0, 0) facing the north direction.  
"G": move one step. Position: (0, 1). Direction: North.  
"L": turn 90 degrees anti-clockwise. Position: (0, 1). Direction: West.  
"G": move one step. Position: (-1, 1). Direction: West.  
"L": turn 90 degrees anti-clockwise. Position: (-1, 1). Direction: South.  
"G": move one step. Position: (-1, 0). Direction: South.  
"L": turn 90 degrees anti-clockwise. Position: (-1, 0). Direction: East.  
"G": move one step. Position: (0, 0). Direction: East.  
"L": turn 90 degrees anti-clockwise. Position: (0, 0). Direction: North.  
Repeating the instructions, the robot goes into the cycle: (0, 0) --> (0, 1) --> (-1, 1) --> (-1, 0) --> (0, 0).  
Based on that, we return true.

**Constraints:**

* 1 <= instructions.length <= 100
* instructions[i] is 'G', 'L' or, 'R'.