On an infinite plane, a robot initially stands at (0, 0) and faces north.  The robot can receive one of three instructions:

* "G": go straight 1 unit;
* "L": turn 90 degrees to the left;
* "R": turn 90 degress to the right.

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:** "GGLLGG"

**Output:** true

**Explanation:**

The robot moves from (0,0) to (0,2), turns 180 degrees, and then returns to (0,0).

When repeating these instructions, the robot remains in the circle of radius 2 centered at the origin.

**Example 2:**

**Input:** "GG"

**Output:** false

**Explanation:**

The robot moves north indefinitely.

**Example 3:**

**Input:** "GL"

**Output:** true

**Explanation:**

The robot moves from (0, 0) -> (0, 1) -> (-1, 1) -> (-1, 0) -> (0, 0) -> ...

**Note:**

1. 1 <= instructions.length <= 100
2. instructions[i] is in {'G', 'L', 'R'}