

2012 Four in a Line

Four in a Line is a game similar to 3-dimensional noughts and crosses. It consists of a horizontal table on which 16 pegs, each of which can hold 4 beads, are arranged in a 4×4 grid. Each player has a supply of either green or red beads which are placed on the pegs in turn, starting with red. Obviously, as each bead is placed on a peg, it slides down as far as it can — until it either hits another bead or the supporting table. The winner is the first to get 4 beads of their colour in a line (hence the name). The line can be in any plane and in any orientation, as long as the four beads are all of the same colour and form a straight line.

As with most games, the interesting part comes towards the end, when each player (colour) is attempting to build a line and block the opponent's incipient lines. Write a program that will read in details of a game position and determine whether green (the next player) can be guaranteed to win the game within 5 *plies*. A *ply* is half a turn, in this situation placing one bead, thus 5 plies implies three moves by green and two by red.

Input

Input consists of a number of games. Each game consists of 4 lines of characters, each line consisting of 4 blocks of 4 characters — 'R' for red, 'G' for green or '#' for empty — where each block represents the contents of a single peg with the left end representing the bottom. Thus the block 'GRR#' represents a peg with a green bead on the bottom with two red beads above it. Note that the entire state of the game is always given, thus the starting state would consist of 64 '#' characters arranged in 16 blocks of 4. You can assume that the position is valid, i.e. that there will be exactly one more red bead than green beads, and that there will not be any holes in the description (the block 'GR#G', for instance). There will be one blank line after each game and input will be terminated by a line containing only a single '#'.

Output

For each game description in the input, output a single line of the form 'Green can win in N move(s)', where $1 \leq N \leq 3$, and where N is the smallest such number, or 'Green cannot win in 3 moves'. Use the singular form when $N = 1$ and the plural form otherwise.

Sample Input

```
GGG# RR## R### R###
#### #### #### ####
#### #### #### ####
#### #### #### ####
```

```
RRR# RGG# RGG# ####
#### #### #### ####
#### #### #### ####
#### #### #### ####
```

```
#
```

Sample Output

Green can win in 1 move

Green cannot win in 3 moves