code jam

System.out.println("hello, world!");

Time Remaining: 18 hours 22 min Rank: 752 Score: 51

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Qualification Round 2015

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- Submissions

Standing Ovation

7pt	Correct **9959/11877 users** correct (84%)
10pt	Submitted **9573 users** attempted

Infinite House of Pancakes

9pt	Not attempted **1696/5242 users** correct (32%)
12pt	Not attempted **1471 users** attempted

Dijkstra

11pt	Not attempted **1140/1786 users** correct (64%)
17pt	Not attempted **810 users** attempted

Ominous Omino

8pt	Correct **940/1320 users** correct (71%)
26pt	Submitted **496 users** attempted

- Top Scores

xiaowuc1	100
kyc	100
sevenkplus	100
cgy4ever	100
ksun48	100
Csirke	100
Progbeat	100
arthur.nascimento	100
eha	100

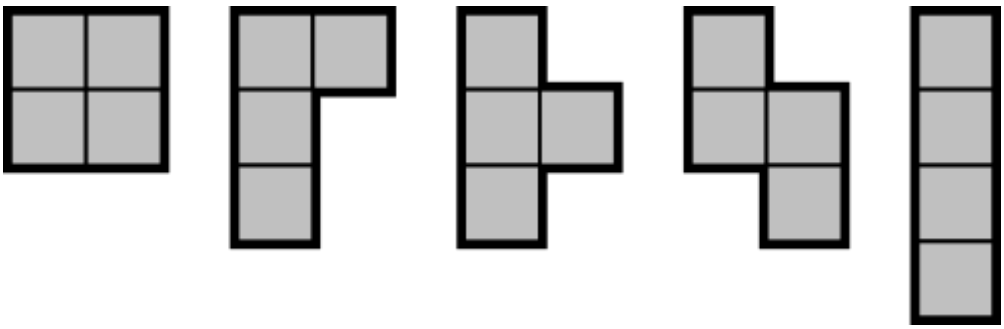
Problem D. Ominous Omino

Confused? Read the quick-start guide.

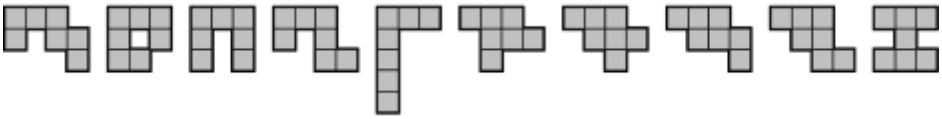
Small input 8 points	You have solved this input set.
Large input 26 points	You have already tried this input set. (Judged at the end of the contest.)

Problem

An *N*-omino is a two-dimensional shape formed by joining *N* unit cells fully along their edges in some way. More formally, a 1-omino is a 1x1 unit square, and an *N*-omino is an (*N*-1)omino with one or more of its edges joined to an adjacent 1x1 unit square. For the purpose of this problem, we consider two *N*-ominoes to be the same if one can be transformed into the other via reflection and/or rotation. For example, these are the five possible 4-ominoes:



And here are some of the 108 possible 7-ominoes:



Richard and Gabriel are going to play a game with the following rules, for some predetermined values of **X**, **R**, and **C**:

1. Richard will choose any one of the possible **X**-ominoes.
2. Gabriel must use at least one copy of that **X**-omino, along with arbitrarily many copies of any **X**-ominoes (which can include the one Richard chose), to completely fill in an **R**-by-**C** grid, with no overlaps and no spillover. That is, every cell must be covered by exactly one of the **X** cells making up an **X**-omino, and no **X**-omino can extend outside the grid. Gabriel is allowed to rotate or reflect as many of the **X**-ominoes as he wants, including the one Richard chose. If Gabriel can completely fill in the grid, he wins; otherwise, Richard wins.

Given particular values **X**, **R**, and **C**, can Richard choose an **X**-omino that will ensure that he wins, or is Gabriel guaranteed to win no matter what Richard chooses?

Input

darnley 100

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each contains three space-separated integers: **X**, **R**, and **C**.

Output

For each test case, output one line containing "Case #x: y", where x is the test case number (starting from 1) and y is either RICHARD (if there is at least one choice that ensures victory for Richard) or GABRIEL (if Gabriel will win no matter what Richard chooses).

Limits

Small dataset

T = 64.
1 ≤ **X, R, C** ≤ 4.

Large dataset

1 ≤ **T** ≤ 100.
1 ≤ **X, R, C** ≤ 20.

Sample

Input	Output
4 2 2 2 2 1 3 4 4 1 3 2 3	Case #1: GABRIEL Case #2: RICHARD Case #3: RICHARD Case #4: GABRIEL

In case #1, Richard only has one 2-omino available to choose -- the 1x2 block formed by joining two unit cells together. No matter how Gabriel places this block in the 2x2 grid, he will leave a hole that can be exactly filled with another 1x2 block. So Gabriel wins.

In case #2, Richard has to choose the 1x2 block, but no matter where Gabriel puts it, he will be left with a single 1x1 hole that he cannot fill using only 2-ominoes. So Richard wins.

In case #3, one winning strategy for Richard is to choose the 2x2 square 4-omino. There is no way for Gabriel to fit that square into the 4x1 grid such that it is completely contained within the grid, so Richard wins.

In case #4, Richard can either pick the straight 3-omino or the L-shaped 3-omino. In either case, Gabriel can fit it into the grid and then use another copy of the same 3-omino to fill in the remaining hole.