

Round 2 2008

[A. Cheating a Boolean Tree](#)

B. Triangle Areas

[C. Star Wars](#)

[D. PermRLE](#)

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Submissions

Cheating a Boolean Tree

5pt	Not attempted 1495/1706 users correct (88%)
10pt	Not attempted 1313/1435 users correct (91%)

Triangle Areas

5pt	Not attempted 1177/1733 users correct (68%)
15pt	Not attempted 163/518 users correct (31%)

Star Wars

10pt	Not attempted 192/398 users correct (48%)
20pt	Not attempted 128/206 users correct (62%)

PermRLE

5pt	Not attempted 1322/1388 users correct (95%)
30pt	Not attempted 83/322 users correct (26%)

Top Scores

Eryx	100
berry	100
austrin	100
ACRush	100
darnley	100
mystic	100
Ahyangyi	100
halyavin	100
tourist	100
misof	100

Problem B. Triangle Areas

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input  
5 points

Solve B-small

Large input  
15 points

Solve B-large

Problem

Ten-year-old Tangor has just discovered how to compute the area of a triangle. Being a bright boy, he is amazed by how many different ways one can compute the area. He also convinced himself that, if all the points of the triangle have integer coordinates, then the triangle's area is always either an integer or half of an integer! Isn't that nice?

But today Tangor is trying to go in the opposite direction. Instead of taking a triangle and computing its area, he is taking an integer **A** and trying to draw a triangle of area **A/2**. He restricts himself to using only the integer points on his graph paper for the triangle's vertices.

More precisely, the sheet of graph paper is divided into an **N** by **M** grid of square cells. The triangle's vertices may only be placed in the corners of those cells. If you imagine a coordinate system on the paper, then these points are of the form **(x, y)**, where **x** and **y** are integers such that  $0 \leq x \leq N$  and  $0 \leq y \leq M$ .

Given the integer **A**, help Tangor find three integer points on the sheet of graph paper such that the area of the triangle formed by those points is exactly **A/2**, if that is possible. In case there is more than one way to do this, any solution will make him happy.

Input

One line containing an integer **C**, the number of test cases in the input file.

The next **C** lines will each contain three integers **N**, **M**, and **A**, as described above.

Output

For each test case, output one line. If there is no way to satisfy the condition, output

Case #k: IMPOSSIBLE

where k is the case number, starting from 1. Otherwise, output

Case #k: x<sub>1</sub> y<sub>1</sub> x<sub>2</sub> y<sub>2</sub> x<sub>3</sub> y<sub>3</sub>

where k is the case number and (x<sub>1</sub>, y<sub>1</sub>), (x<sub>2</sub>, y<sub>2</sub>), (x<sub>3</sub>, y<sub>3</sub>) are any three integer points on the graph paper that form a triangle of area **A/2**.

Limits

$0 \leq C \leq 1000$

$1 \leq A \leq 10^8$

Small dataset

$1 \leq N \leq 50$

$1 \leq M \leq 50$

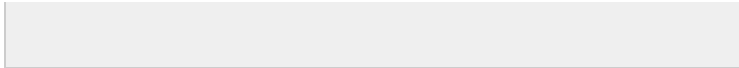
Large dataset

$1 \leq N \leq 10000$

$1 \leq M \leq 10000$

Sample

Input	Output
3	Case #1: 0 0 0 1 1 1
1 1 1	Case #2: IMPOSSIBLE
1 2 64	Case #3: 1 1 2 3 5 8
10 10 1	



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