Code Jam Beta 2008

A. Triangle Trilemma

B. The Price is Wrong

C. Random Route

D. Hexagon Game

Questions asked

Submissions

Triangle Trilemma

10pt | Not attempted **244/318 users** correct (77%)

10pt | Not attempted **200/260 users** correct (77%)

The Price is Wrong

15pt | Not attempted **110/175 users** correct (63%)

25pt | Not attempted **67/96 users** correct (70%)

Random Route

30pt | Not attempted **42/76 users** correct (55%)

30pt | Not attempted **38/51 users** correct (75%)

Hexagon Game

25pt | Not attempted **8/29 users** correct (28%)

45pt | Not attempted **6/15 users** correct (40%)

Top Scores

malcin	190
marek.cygan	190
SnapDragon	165
ardiankp	145
Astein	130
rem	130
RAVEman	120
yuhch123	120
Lovro	120
lukasP	120

Problem A. Triangle Trilemma

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 10 points	Solve A-small
Large input 10 points	Solve A-large

Problem

You're interested in writing a program to classify triangles. Triangles can be classified according to their internal angles. If one of the internal angles is exactly 90 degrees, then that triangle is known as a "right" triangle. If one of the internal angles is greater than 90 degrees, that triangle is known as an "obtuse" triangle. Otherwise, all the internal angles are less than 90 degrees and the triangle is known as an "acute" triangle.

Triangles can also be classified according to the relative lengths of their sides. In a "scalene" triangle, all three sides have different lengths. In an "isosceles" triangle, two of the sides are of equal length. (If all three sides have the same length, the triangle is known as an "equilateral" triangle, but you can ignore this case since there will be no equilateral triangles in the input data.)

Your program must determine, for each set of three points, whether or not those points form a triangle. If the three points are not distinct, or the three points are collinear, then those points do not form a valid triangle. (Another way is to calculate the area of the triangle; valid triangles must have non-zero area.) Otherwise, your program will classify the triangle as one of "acute", "obtuse", or "right", and one of "isosceles" or "scalene".

Input

The first line of input gives the number of cases, **N**. **N** test cases follow. Each case is a line formatted as

```
x1 y1 x2 y2 x3 y3
```

Output

For each test case, output one line containing "Case #**x**: " followed by one of these strings:

- `isosceles acute triangle`
- `isosceles obtuse triangle`
- `isosceles right triangle`
- `scalene acute triangle`
- `scalene obtuse triangle`
- `scalene right triangle`
- `not a triangle`

Limits

$1 \le \mathbf{N} \le 100$,
x1, **y1**, **x2**, **y2**, **x3**, **y3** will be integers.

Small dataset

$0 \le \mathbf{x1}, \mathbf{y1}, \mathbf{x2}, \mathbf{y2}, \mathbf{x3}, \mathbf{y3} \le 9$

Large dataset

$-1000 \le \mathbf{x1}, \mathbf{y1}, \mathbf{x2}, \mathbf{y2}, \mathbf{x3}, \mathbf{y3} \le 1000$

Sample

```
Input          Output
8              Case #1: isosceles obtuse triangle
0 0 0 4 1 2    Case #2: scalene acute triangle
1 1 1 4 3 2    Case #3: isosceles acute triangle
2 2 2 4 4 3    Case #4: scalene right triangle
3 3 3 4 5 3    Case #5: scalene obtuse triangle
4 4 4 5 5 6    Case #6: isosceles right triangle
5 5 5 6 6 5    Case #7: not a triangle
6 6 6 7 6 8    Case #8: not a triangle
7 7 7 7 7 7
```

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