EMEA Semifinal 2008

Submissions

Scaled Triangle

9pt	Not attempted **83/100 users** correct (83%)
13pt	Not attempted **78/87 users** correct (90%)

Painting a Fence

7pt	Not attempted **190/199 users** correct (95%)
13pt	Not attempted **113/144 users** correct (78%)

Rainbow Trees

9pt	Not attempted **71/90 users** correct (79%)
15pt	Not attempted **68/72 users** correct (94%)

Bus Stops

8pt	Not attempted **51/57 users** correct (89%)
26pt	Not attempted **16/23 users** correct (70%)

Top Scores

bmerry	100
dzhulgakov	100
gawry	100
dgozman	100
halyavin	100
pashka	100
mystic	100
Klinck	80
.Invader	76
DmitryKlenov	76

Problem A. Scaled Triangle

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 9 points	Solve A-small
Large input 13 points	Solve A-large

Problem

You are given two triangle-shaped pictures. The second picture is a possibly translated, rotated and scaled version of the first. The two triangles are placed on the table, with the second one placed completely inside (possibly touching the boundary of) the first one. The second triangle is always scaled by a factor that is strictly between 0 and 1.

You need to process the picture, and for that you need a point in the picture which overlaps with the same point of the scaled picture. If there is more than one solution, you can return any of them. If there are no solutions, print "No Solution" (without the quotes) for that test case.

Input

The first line of input gives the number of cases, **N**. Then for each test case, there will be two lines, each containing six space-separated integers -- the coordinates of one of the triangles -- in the format "x_1 y_1 x_2 y_2 x_3 y_3". The point (x_1, y_1) in the first triangle corresponds to the same corner of the picture as (x_1, y_1) in the second triangle, and similarly for (x_2, y_2) and (x_3, y_3).

Output

For each test case, output one line containing "Case #**x**: " followed two real numbers representing the coordinates of the overlapping point separated by one space character, or the string "No Solution". Answers with a relative or absolute error of at most 10^{-5} will be considered correct.

Limits

1 <= **N** <= 10.
The coordinates of the points will be integer numbers between -10 000 and 10 000. The three points in each triangle will not be collinear.

Small dataset

All tests will contain isosceles right-angle triangles. (i.e., the triangle's angles will be 45 degrees, 45 degrees, and 90 degrees.)

Large dataset

The triangles can have any shape.

Sample input

```
2
0 0 0 2 2 0
0 0 0 1 1 0
10 0 0 10 0 0
3 3 1 1 3 1
```

Sample output

```
Case #1: 0.000000 0.000000
Case #2: 2.692308 1.538462
```