

Problem A: Andy's big heart

Andy has a very big heart: he has three different girlfriends at the same time. However, his three girlfriends live in a neighborhood which is far away from his house, and as such, Andy has decided to move. He wants to be near his three loves, but as he doesn't know which of the three girls he loves the most, he wants his new house to be separated by exactly the same distance from each of his pretty girls' houses (only if that is possible, of course). The problem is that Andy is not pretty good at this kind of stuff, so he has promised to share some of his loving tips if you help him with the task. You really want some loving tips, don't you?

Input

The input file contains several cases. Each case contains exactly one line with three pairs of integers separated by a single space. Each pair of integers x and y ($-1001 < x, y < 1001$) corresponds to the (x, y) coordinates of one of Andy's girlfriends. You may assume that all x 's in a single case are different and all y 's in a single case are different. The input is terminated with a case where all six integers are 0. This case should not be processed.

Output

There should be exactly one line of output for each case in the input. If it is possible for Andy to move to a house which is equally far away from each of his girlfriends' houses, the output line should be *Andy should move to the house at point (x, y) .* where x and y are floating-point numbers with exactly 3 digits of precision indicating the coordinates of Andy's new house. If it is not possible, the answer should be *Andy's big heart will break.*

Sample input

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-1 1 1 2 3 0
0 0 10 25 20 50
-101 24 456 32 -567 12
0 0 0 0 0 0
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Sample output

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Andy should move to the house at point (0.833, -0.167).
Andy's big heart will break.
Andy should move to the house at point (822.910, -44908.672).
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