GEEK In The Army

This is the story of every graduate from FCIS when they go to join the army. They are expecting just serving their commanders and cleaning the offices and sending faxes and collecting the garbage and so many trivial jobs. But in fact they found themselves doing much better work. The army are building a new defense system that could locate the enemies tanks. Part of the system is to calculate the area of the triangle that contain the tanks given three vertices of the triangle. You are the geek who will do this task to help your army!

Input

The first line of input will be the number of test cases. Each case has one line containing 6 numbers separated by a space x1 y1 x2 y2 x3 y3 which is the coordinates of the vertices, -1000 <= xi, yi <= 1000.

Output

For each test case print "Case C: X" without quotes where c is the case number starting with 1 and X is the area of the triangle. Show only and exactly 3 decimal numbers.

Example

Input:

1
0 3 3 0 -3 0

Output:

Case 1: 9.000