Triangle Field

Today you are helping a farmer named John Deer with his work on the farm. John is about to buy a piece of land from a neighbouring farmer, but as he knows that the neighbouring farmers all envy him for having the best farm in the whole county he is afraid they will try to trick him into doing a bad deal by paying too much per square meter.

The Field that John will buy has a triangular shape, and John is going to measure the coordinates of the 3 corners of the field with his GPS, but he needs your help to calculate the area of the field.

Input

First line of input consists of an integer $1 \leq T \leq 100$, the number of test cases. Each test case consists of 6 real numbers X_a, Y_a, X_b, Y_b, X_c and Y_c in that order, describing the coordinates of the field, all coordinates will be at most 10000. (A point x,y is x meter north and y meter east of some fixed reference point)

Output

For each test case, output the area in square meters of the triangular field rounded to 3 decimals.

Sample Input 1	Sample Output 1
2 1 1 1 2 2 2 1.0 1.0 2.3 4.2 8.1 2.7	0.500 10.255