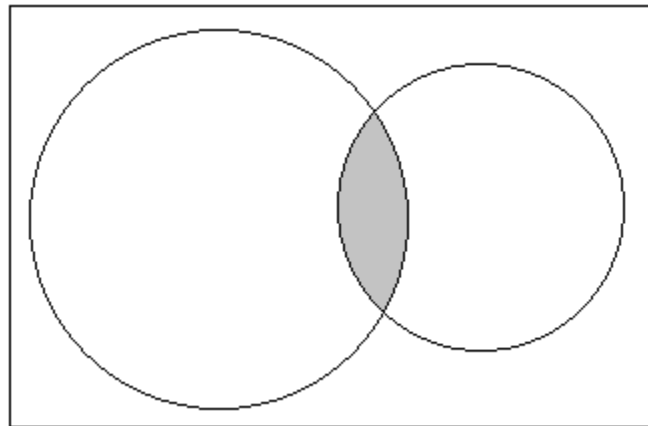


1118 – Incredible Molecules

In the biological lab, you were examining some of the molecules. You got some interesting behavior about some of the molecules. There are some circular molecules, when two of them collide, they overlap with each other, and it's hard to find that which one is over the other one.

Given two molecules as circles, you have to find the common area of the given molecules that is shaded in the picture.



Overlapping Molecules

Input

Input starts with an integer T (≤ 12), denoting the number of test cases.

Each case contains six integers x_1 , y_1 , r_1 and x_2 , y_2 , r_2 . Where (x_1, y_1) is the center of the first molecule and r_1 is the radius and (x_2, y_2) is the center of the second molecule and r_2 is the radius. Both the radiuses are positive. No integer will contain more than 3 digits.

Output

For each test case, print the case number and the common area of the given molecules. Errors less than 10^{-6} will be ignored.

Sample Input	Output for Sample Input
3	Case 1: 45.3311753978
0 0 10 15 0 10	Case 2: 35.07666099
-10 -10 5 0 -10 10	Case 3: 860.84369
100 100 20 100 110 20	