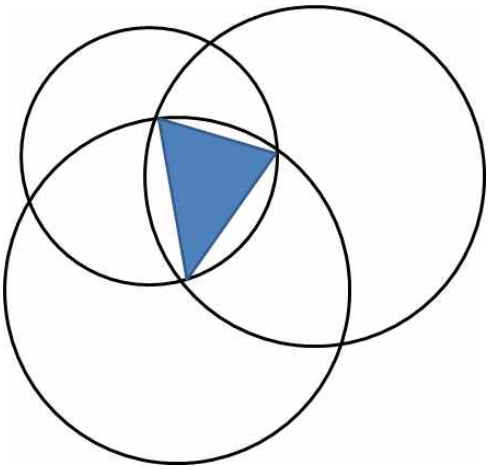
Area of Triangle in Common Region of 3 Circles

The Problem

When 3 circles intersect each other as shown below, a triangle can be determined by the common region of the 3 circles. Given 3 circles, you are asked to compute the are of the triangle.



The Input

The first line of the input consists of a single integer T giving the number of test cases to follow.

Each test case consists of 3 lines, each giving the information of a circle: x- and y-coordinate of the center, and radius. Every value of x- and y-coordinate and radius is integer and is between −3,000 and +3,000.

Input file name: area.inp

The Output

For each test case in the input output the area of the triangle in 2 decimal points.

Output file name: area.out

Sample Input

```
3
-1 -127 362
-594 -275 332
232 -1354 1236

-211 -44 512
-703 -233 428
-93 -720 517

244 40 463
773 397 405
-60 1250 1082
```

Sample Output

```
4990.92
24872.91
20142.13
```