

Submissions

Year of More Code Jam

5pt Not attempted  
16/17 users correct  
(94%)

12pt Not attempted  
9/15 users correct  
(60%)

Min Perimeter

5pt Not attempted  
17/19 users correct  
(89%)

15pt Not attempted  
4/13 users correct  
(31%)

Doubly-sorted Grid

10pt Not attempted  
16/16 users correct  
(100%)

20pt Not attempted  
4/5 users correct  
(80%)

Wi-fi Towers

3pt Not attempted  
22/22 users correct  
(100%)

25pt Not attempted  
9/12 users correct  
(75%)

Marbles

7pt Not attempted  
16/19 users correct  
(84%)

32pt Not attempted  
2/8 users correct  
(25%)

Lights

21pt Not attempted  
2/4 users correct  
(50%)

45pt Not attempted  
1/2 users correct  
(50%)

Top Scores

ACRush	168
qizichao	87
wata	81
ZhukovDmitry	70
dzhulgakov	69
nika	62
Vitaliy	62
kalinov	55
halyavin	54
bmerry	50

Problem F. Lights

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input  
21 points

Solve F-small

Large input  
45 points

Solve F-large

Problem

In a big, square room there are two point light sources: one is red and the other is green. There are also  $n$  circular pillars.

Light travels in straight lines and is absorbed by walls and pillars. The pillars therefore cast shadows: they do not let light through. There are places in the room where no light reaches (black), where only one of the two light sources reaches (red or green), and places where both lights reach (yellow). Compute the total area of each of the four colors in the room. Do not include the area of the pillars.

Input

- One line containing the number of test cases,  $T$ .

Each test case contains, in order:

- One line containing the coordinates  $x, y$  of the red light source.
- One line containing the coordinates  $x, y$  of the green light source.
- One line containing the number of pillars  $n$ .
- $n$  lines describing the pillars. Each contains 3 numbers  $x, y, r$ . The pillar is a disk with the center  $(x, y)$  and radius  $r$ .

The room is the square described by  $0 \leq x, y \leq 100$ . Pillars, room walls and light sources are all disjoint, they do not overlap or touch.

Output

For each test case, output:

Case #X:  
black area  
red area  
green area  
yellow area

where  $X$  is the test case number, starting from 1, and each area is a real number.

Any answer with absolute or relative error of at most  $10^{-5}$  will be accepted.

Limits

All input numbers are integers.

$1 \leq T \leq 15$   
 $0 \leq x, y \leq 100$   
 $1 \leq r \leq 49$

Small dataset

$0 \leq n \leq 1$

Large dataset

$0 \leq n \leq 50$

Sample

Input	Output
1	Case #1:
5 50	0.7656121
95 50	1437.986
1	1437.986
50 50 10	6809.104

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