Painting Figures

Carl is an abstract artist painting n figures. Each figure i is described as a segment on a plane with ends in (x_1, y_1) and (x_2, y_2) having radius r; this means every point with a distance $\leq r$ from the segment is part of figure i. Carl wants to make sure he has enough paint for all the figures, so he wants to know the *total area* they will cover.

Given the locations for all the figures, find and print a real number denoting the total area covered by all n figures with an absolute or relative error of *at most* 10^{-6}.

Input Format

The first line contains single integer, n, denoting the number of figures.
Each line i of the n subsequent lines contains five space-separated integers describing the respective values of x_1, y_1, x_2, y_2, and r for figure i.

Constraints

- $1 \leq n \leq 200$
- $0 \leq |x_1|, |y_1|, |x_2|, |y_2|, r \leq 10^3$.
- It's guaranteed that each segment's length and r values are positive.

Output Format

Print a real number denoting the total area covered by all n figures with an absolute or relative error of *at most* 10^{-6}.

Sample Input 0

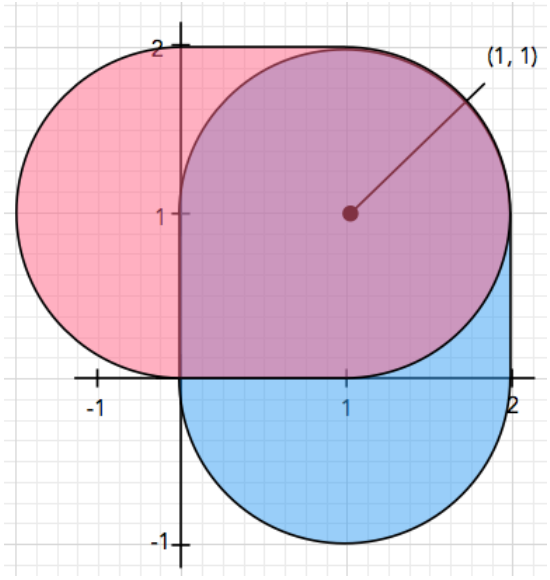
```
2
0 1 1 1 1
1 1 1 0 1
```

Sample Output 0

```
6.9269908170
```

Explanation 0

The diagram below depicts the locations of the two figures on the canvas:



We then calculate the total area covered, which is $\pi \cdot 1^2 + 2 \cdot 2 - \frac{(2 \cdot 2 - \pi \cdot 1^2)}{4} = 6.9269908170$, and print it as our answer.