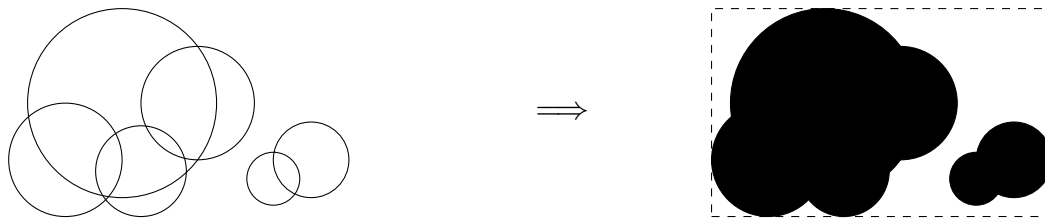


Area of Circle Union

X55040_en

We want to calculate the area of the union of a set of circles. This is a problem that has some non-trivial algorithm for the exact computation. Instead, we would be satisfied by finding an approximation using a Montecarlo method. The ideas is as follows:

- Calculate a bounding box around the circles.
- Generate random points within the bounding box.
- Count how many points are inside some circle.



Exam score: 2.5 **Automatic part:** 100%

Input

The input contains a set of cases. Each case specifies the number of circles, $n \geq 0$, and the number of random points generated for the Montecarlo approximation. After that, a list of n circles is specified, each one with the coordinates of the center, (x, y) , and the radius. The coordinates and the radius are real numbers.

Output

For every case print the estimated area as a real number in free format.

Sample input

```
1 1000000
0 0 1

2 1000000
0 0 1
0 0 0.5

4 1000000
0 0 2
1 1 3
-1 1 4
0 -1.5 2.5
```

Sample output

```
3.14287
3.14187
59.4536
```

Observation

There is no need to compute the exact area. The output will be considered correct if it is a good approximation of the area.

Problem information

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