

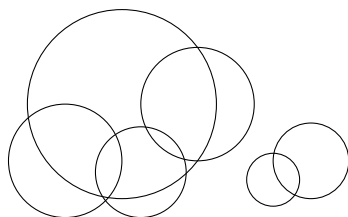
---

**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**

```
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 1**

```
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**

Author: Professors de Info-FME

Generation: 2026-01-25T21:46:46.905Z

© *Jutge.org*, 2006–2026.

<https://jutge.org>