

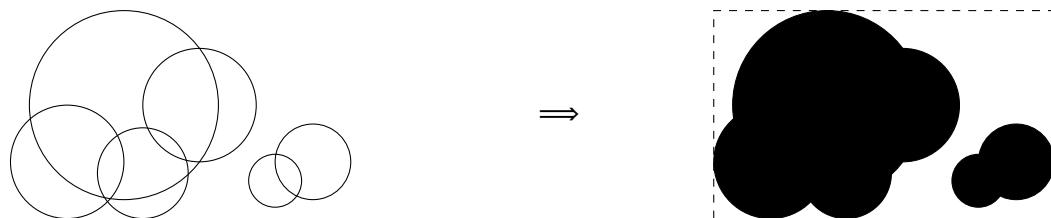
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## Area of Circle Union

**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	Sample output 1
<pre>1 1000000 0 0 1</pre>	<pre>3.14287 3.14187 59.4536</pre>
<pre>2 1000000 0 0 1 0 0 0.5</pre>	
<pre>4 1000000 0 0 2 1 1 3 -1 1 4 0 -1.5 2.5</pre>	

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

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