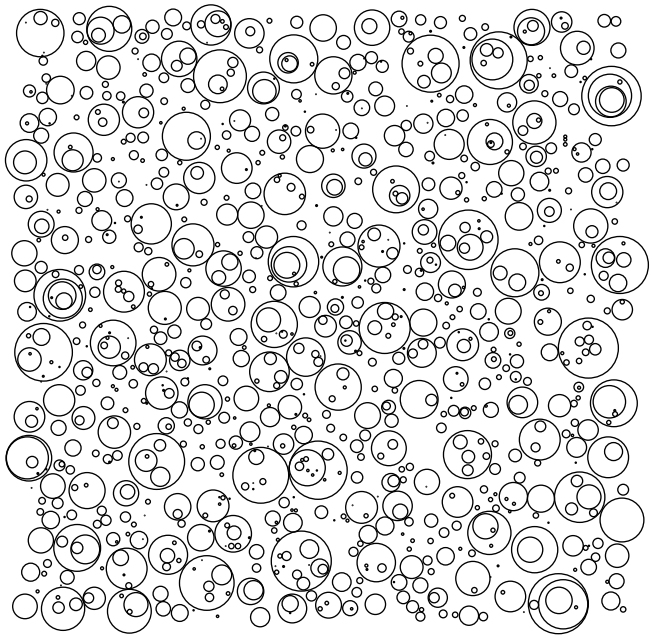
Problem C. Circles

Input file:	`circles.in`
Output file:	`circles.out`
Time limit:	2 seconds
Memory limit:	256 megabytes

There are n circles located on the plane. Circles may have common points, but for any two circles their intersection is either a point, or one of the two circles.



Find the total area covered by at least one circle.

Input

The first line of the input file contains integer number n ($1 \le n \le 100\,000$). The following n lines contain three integers each and describe circles. The i-th circle is described by coordinates of its center x_i and y_i and its radius r_i ($-10^6 \le x_i, y_i \le 10^6$, $1 \le r_i \le 10^6$).

Output

Output one real number: the total area covered by at least one circle. Your answer must have absolute or relative error of at most 10^{-9}.

Example

circles.in	circles.out
4 2 2 2 2 2 1 5 2 1 5 5 2	28.2743338823081391