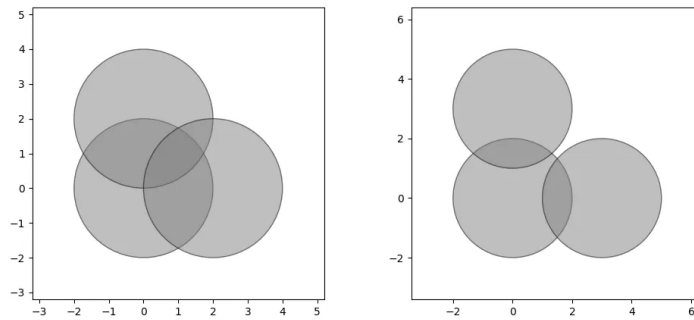


Many Sprinklers

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

There are n sprinklers on a two-dimensional Cartesian plane, each of which can water an area inside (boundary included) a circle.



The sprinklers in the sample cases.

You need to find the total area that can be watered by the sprinklers.

Input

The first line contains an integer T ($1 \leq T \leq 1000$), indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \leq n \leq 1000$), representing the number of sprinklers.

Then n lines follow, the i -th of which contains three integers x_i , y_i ($-10^4 \leq x_i, y_i \leq 10^4$), and r_i ($1 \leq r_i \leq 10^4$), indicating that the i -th sprinkler waters an area inside (boundary included) the circle centered at (x_i, y_i) with radius r_i .

It is guaranteed that the sum of n over all T test cases does not exceed 1000.

Output

For each test case, output a real number in one line, representing the total area that can be watered by the sprinklers.

Your answer is acceptable if its absolute or relative error does not exceed 10^{-6} . Formally speaking, suppose that your output is a and the jury's answer is b , and your output is accepted if and only if $\frac{|a-b|}{\max(1,|b|)} \leq 10^{-6}$.

Example

standard input	standard output
2	27.360855087873111761
3	34.072617811256640855
0 0 2	
0 2 2	
2 0 2	
3	
0 0 2	
0 3 2	
3 0 2	