

A recent election and violent unprecedented secession has firmly established you as warlord of the new nation Illbebakia. Of course, there is still some dissent by your weakling serfs, so you must solidify your military stranglehold on your nation. And naturally, there are neighbors to subdue while you're at it. These tasks are, like so many things, best accomplished by randomly blowing things up. Fortunately, you have a proven talent in this area.

Even as we speak, your warplanes are dropping large bombs all over the country. You need some way to determine the extent of the carnage. If the pilots have served you well, they may live for another precious day. You don't really care about the property damage or the massive casualties; it's simply the psychological effect (shock and woe) that's important. As such, all you want to know is the total area of devastation.

Every bomb has a destruction radius. Anything within that radius is completely eradicated. Computing the area for one bomb is fairly simple, but for many it isn't quite so easy. However, your new nation has a surprisingly large proportion of skilled programmers, so you have respectfully requested their assistance. The survivors of this request (ie, those who cooperated) are now hard at work, writing a program to solve this problem...



Fig 1: A typical explosion

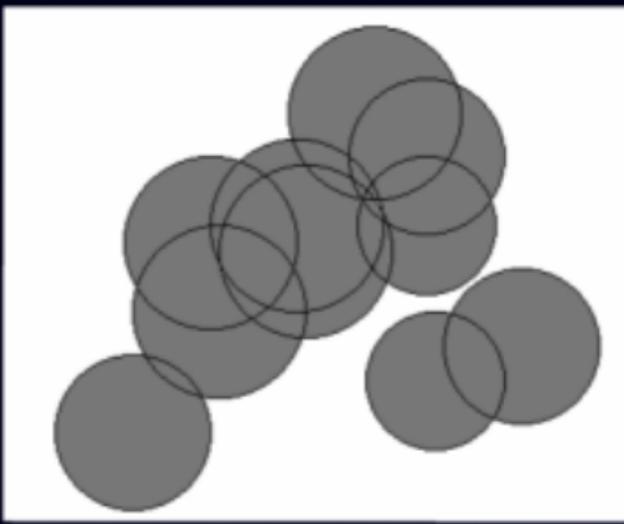


Fig 2: Computing the area for one bomb is fairly simple, but for many it isn't quite so easy. The area is shown in grey.

Input

Input consists of a number of cases. Each case lists all of the bombs dropped on one day of your rule. The first line of case contains n , the number of bombs. The next n lines each contain the x and y coordinates where one bomb exploded, and its destruction radius. There will be at most 100 bombs. Coordinates given are real numbers between 0 and 100, and the radius is a real number between 0 and 10.

There will be at most 50 cases. The last day of bombing will be followed by a line containing 0. This case must not be processed.

Output

For each case, output the area of destruction from all of the bombs from that day, accurate to three decimal places.

Sample Input

```
1
0 0 10
2
0 0 10
0 10 10
0
```

Sample Output

```
314.159
505.482
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