Problem G. Circular Parterre

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

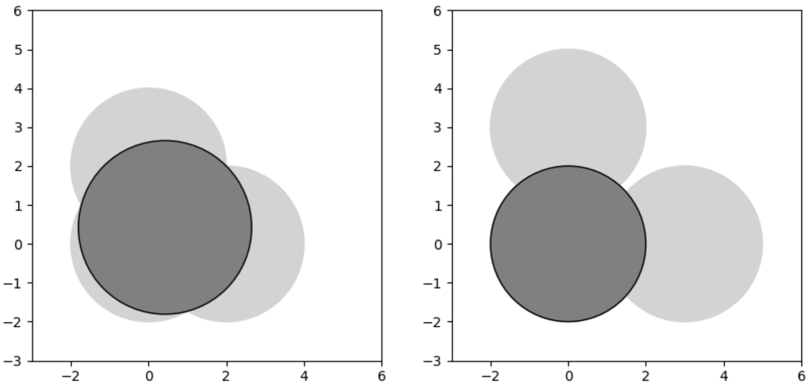

Figure 9: The largest circular parterres in the sample cases.

You need to build the largest circular parterre, such that every point inside or on the boundary of the circular parterre can be watered by some sprinkler.

Input

The first line of the input contains an integer T ($1 \le T \le 300$), indicating the number of test cases. For each test case:

- The first line contains an integer n ($1 \le n \le 300$), indicating the number of sprinklers.
- Then n lines follow, the i-th of which contains three integers x_i, y_i ($-1\,000 \le x_i, y_i \le 1\,000$) and r_i ($1 \le r_i \le 1\,000$), indicating that the i-th sprinkler waters an area inside or on the boundary of the circle centered at (x_i, y_i) with radius r_i.
- It is guaranteed that no two circles are identical or tangent to each other, and the closest pair of points in the (multi)set consisting of the intersection points between any two circles has a distance of no less than 0.01.

It is guaranteed that the sum of n over all test cases does not exceed 300.

Output

For each test case, output a line containing a real number, indicating the radius of the largest circular parterre.

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

Example

standard input	standard output
2 3 0 0 2 0 2 2 2 0 2 3 0 0 2 0 3 2 3 0 2	2.230710143300821420 2.000000000000000000