C. Zayin and Fireball

Zayin is practicing magic at home. His house is an infinite 2-dimension plane. He can summon a fireball which burns a circle area to the ground. To prevent the house from lying in ruins, his dad Nothingnuo has to cast shield magic. The shield can protect a circle area from being destroyed.

This game repeat for N times. Each time Zayin summons a fireball and Nothingnuo places a shield. After the exploding, this shield will no longer work in the future. The process leaves some (or no) area ruined. And it will never recover.

Nothing wonders about the union of the ruined area.

Zayin's i-th fireball destroyed a circle area. It has its center located at (X_i, Y_i) and has a radius R_i. Nothing's shields are described similarly. For more details, you can refer to **Input**.

In short: There are $2N$ circles. Which can be described as $\{X_1, Y_1, R_1\}, \{X_2, Y_2, R_2\} \dots \{X_N, Y_N, R_N\}$ and $\{x_1, y_1, r_1\}, \{x_2, y_2, r_2\} \dots \{x_N, y_N, r_N\}$. (X, Y) is the coordinate of center, and R is radius. And you need to calculate $AreaSize(\cup_1^N \{X_i, Y_i, R_i\} \setminus \{x_i, y_i, r_i\})$.

Input

The first line of input contains an integer $T(1 \le T \le 30)$, denoting the number of test cases.

Each test case starts with a positive integer $N(1 \le N \le 500)$.

The next N lines give the description of the circles. The i-th line contains 6 integers: $X_i, Y_i, R_i, x_i, y_i, r_i$. $(|X|, |Y|, |x|, |y| \le 1000, 0 \le R, r \le 200)$.

Notice: It is guaranteed that all $\{X_i, Y_i, R_i\}$ are different with each other. And all $\{x_i, y_i, r_i\}$ are different with each other. But there may exist i, j that $\{X_i, Y_i, R_i\}$ and $\{x_j, y_j, r_j\}$ are the same.

Output

For each case print the ruined area.

Absolute error up to 10^{-2} will be ignored.

Sample

Input	Output
2 1 0 0 2 0 0 1 2 0 0 2 2 0 2 2 2 2 233 0 51	9.424778 19.707963

Explanation