Problem A. Astronomy Problem

Input file:	`astronomy.in`
Output file:	`astronomy.out`
Time limit:	3 seconds
Memory limit:	512 megabytes

Archeologists of Flatland planet have found several ancient manuscripts. Each manuscript describes the location of three parts of some powerful artifact. The parts of each artifact are hidden at Flatland and two other planets. The planets are not identified in the manuscript, but it is said that the distance from Flatland to one of the planets is $\sqrt{a_i}$, the distance from Flatland to another planet is $\sqrt{b_i}$ and the distance between the planets is $\sqrt{c_i}$.

Flatland universe is a plane with orthogonal Cartesian coordinate system. Flatland is located at a point $(0, 0)$. There are n planets except Flatland in the universe, the i-th planet is located at a point (x_i, y_i).

Help archeologists to solve astronomy problem, for each manuscript find the number of possible pairs of planets that satisfy the manuscript description.

Input

The input file contains multiple test cases.

The first line of each test case contains n — the number of other planets ($1 \le n \le 3000$). The following n lines contain two integers each: x_i, y_i ($-10^9 \le x_i, y_i \le 10^9$). No two planets coincide. No other planet is located at $(0, 0)$.

The following line contains m — the number of manuscripts to process ($1 \le m \le 3000$). The following m lines contain three integers each: a_i, b_i, c_i ($1 \le a_i, b_i, c_i \le 8 \cdot 10^{18}$).

Input is followed by a line with $n = 0$.

The sum of values of n in all test cases in one file doesn't exceed 3000. The sum of values of m in all test cases in one file doesn't exceed 3000.

Output

For each test case output m integers: for each manuscript output the number of planet pairs that satisfy the description from the manuscript.

Examples

astronomy.in	astronomy.out
6 0 2 1 1 2 0 5 0 -3 4 -4 3 4 25 25 2 4 2 2 4 25 9 25 25 100 0	1 2 1 0