C: Cable Management

Time Limit: 4 seconds

There are n data centers in the plane that you would like to connect up so that each pair can talk to each other. To do so, you are allowed to lay down infinite-length axis-aligned lines (cables). A data center is attached to a cable if it lies on that cable. Two data centers are connected if one can follow some sequence of cables to go between the two (if two cables intersect, then they form a connection at their intersection point).

What is the minimum number of cables you need to connect all pairs of data centers?

Input

The first line of input contains a single integer T ($1 \leq T \leq 100$), representing the number of test cases.

The descriptions of T test cases follow. Each test case starts with a line containing a single integer n ($2 \leq n \leq 10^5$), the number of data centers.

The next n lines each describe one data center. Each line contains two integers, x and y ($-10^9 \leq x, y \leq 10^9$), indicating that the data center is located at (x, y).

No two data centers in the same test case are at the same location.

The sum of n over all test cases will not exceed 10^5.

Output

For each test case, output the minimum number of cables you need to connect all pairs of data centers.

Sample Input 1	Sample Output 1
3 4 1 1 1 2 2 1 2 2 3 1 1 1 2 2 2 4 6 1 6 2 1 7 2 7	3 2 2