Problem I. Intersecting line segments

Source file name:	I.c, I.cpp, I.java, I.py
Input:	`Standard`
Output:	`Standard`

In a 2-D Cartesian space, a straight line segment A is defined by two points $A_0 = (x_0, y_0)$, $A_1 = (x_1, y_1)$. The intersection of line segments A and B (if there is one), together with the initial four points, defines four new line segments. In Figure 1.1, the intersection P between lines B and C defines four new segments. As a result, the total amount of line segments after the evaluation of intersections is five.

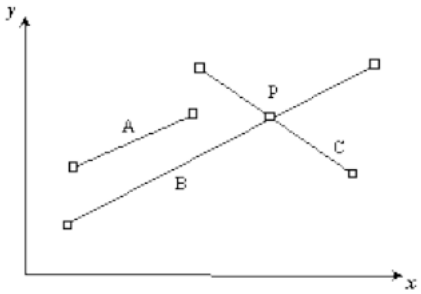

Figure 1.1 - Intersections of line segments

Given an initial set of lines segments, determine the number of line segments resulting from the evaluation of all the possible intersections. It is assumed, as a simplification, that no coincidences may occur between coordinates of singular points (intersections or end points).

Input

The input begins with a single positive integer on a line by itself indicating the number of test cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive test cases.

For each test case the first line contains the integer number N of line segments. Each of the following N lines contains four integer values x_0, y_0, x_1, y_1, separated by a single space, that define a line segment.

- $1 \leq N \leq 20000$
- $0 \leq x_0, y_0, x_1, y_1 \leq 10^6$

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line. The integer number of lines segments after all the possible intersections are evaluated.

Example

Input	Output
2 5 3 1 3 8 4 1 4 8 2 4 9 4 8 7 5 7 5 6 10 1 2 2 4 4 9 2 6 5 4	11 4