1432 – Overlapping Sticks

N sticks are randomly dropped on the 2D cartesian plane. You have to find the number of stick pairs that are in overlapping position. Two sticks are said to be in overlapping position if they have infinely many intersection points. A stick is defined by two dictinct points (x_1, y_1) and (x_2, y_2) which denote the end points of the stick.

Input

Input starts with an integer **T (≤ 5)**, denoting the number of test cases.

Each case starts with a line containing an integer **N** $(1 \leq N \leq 10^5)$. Each of the next **N** lines contians four integers x_1, y_1, x_2, y_2 $(-10^6 \leq x_1, y_1, x_2, y_2 \leq 10^6)$ forming a segment.

Output

For each case, print the case number and the number of stick pairs in overlapping position.

Sample Input	Output for Sample Input
2 4 1 0 5 0 5 0 8 0 4 0 6 0 0 0 10 0 2 1 1 5 5 5 1 1 5	Case 1: 5 Case 2: 0

Note

Dataset is huge, use faster I/O methods.