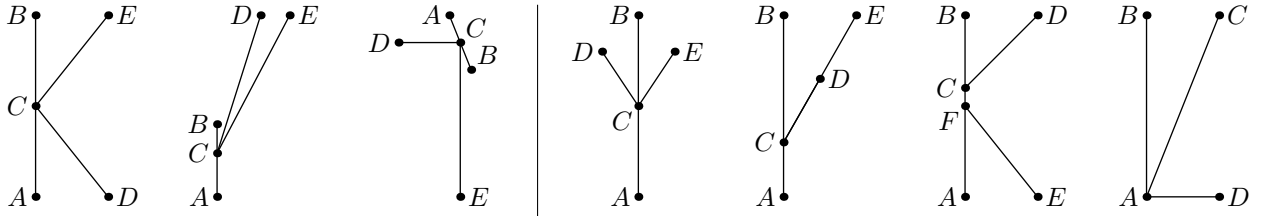
Problem K. K-Shaped Figures

Time limit:	3 seconds
Memory limit:	512 megabytes

Let's say that three segments on a plane form a *K-shaped figure* if:

- two of them share a common endpoint;
- this common endpoint lies strictly inside the third segment;
- these two segments are located on the same side with respect to the third one;
- all three segments are pairwise not collinear.



Valid K-shaped figures

Invalid K-shaped figures

You are given a collection of n segments on the plane. Find the number of triples of segments from this collection that form a K-shaped figure.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 3333$). The description of the test cases follows.

The first line of each test case contains a single integer n — the number of segments ($3 \le n \le 1000$).

The i-th of the following n lines contains four integers $x_{i,1}$, $y_{i,1}$, $x_{i,2}$, $y_{i,2}$ — the coordinates of endpoints of the i-th segment ($-10^6 \le x_{i,1}, y_{i,1}, x_{i,2}, y_{i,2} \le 10^6$). All segments have positive lengths. Some segments may coincide.

It is guaranteed that the sum of n over all test cases does not exceed 10^4.

Output

For each test case, print a single integer — the number of triples of segments that form a K-shaped figure.

Example

standard input	standard output
2 5 0 0 0 10 0 5 3 10 0 5 3 0 0 5 7 4 0 5 6 2 8 0 0 10 10 3 4 4 4 4 4 4 5 3 4 4 4 7 7 7 8 7 7 8 7 5 5 4 6 5 5 3 7	6 2