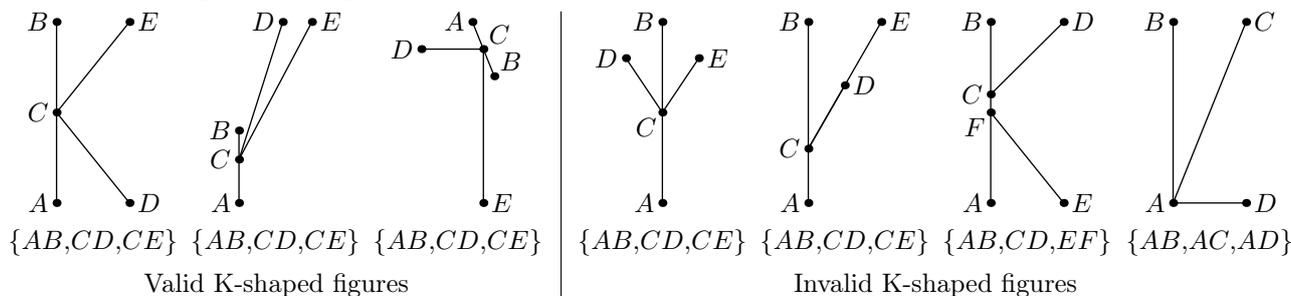


Problem K. K-Shaped Figures

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.



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 ($1 \leq t \leq 3333$). The description of the test cases follows.

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

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 ($-10^6 \leq x_{i,1}, y_{i,1}, x_{i,2}, y_{i,2} \leq 10^6$). 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	6
5	2
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	