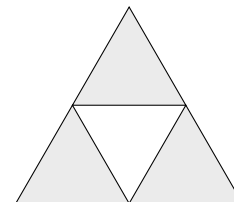


1 Problem Statement

A “Triforce”, the fictional relic from Nintendo’s *The Legend of Zelda* video games, is composed of three identical equilateral triangles that connect at their vertices to form a larger triangle (as pictured).

Given a group of three triangles, defined by their vertices on a 2D plane, your task is to determine whether they form a Triforce. The shape that is formed may be of arbitrary size and can be rotated at any angle.



To allow a small amount of tolerance in floating point arithmetic, your program should consider two values to be equivalent if they are within 0.1 of each other. Use this for comparison operations only— all other arithmetic operations should be handled normally.

$$a \equiv b \iff -0.1 \leq a - b \leq 0.1$$

(This is just to ensure that comparisons are accurate. Don’t take this so seriously.)

2 Input

The first line of input contains a single integer P , ($1 \leq P \leq 1000$), which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set begins with a single line that contains K , the data set number, followed by nine (9) lines, each of which contains a pair of decimal numbers (X , Y), ($-5000 \leq X, Y \leq 5000$) which represent coordinates on a $10,000 \times 10,000$ plane. The first three coordinates make up one triangle, the middle three the second triangle, and the last three the third triangle.

Note: Coordinates are NOT integers. Each value given will have 2 digits after the decimal.

3 Output

For each data set there is a single line of output. The single line of output consists of the data set number K , followed by a single space followed by the letter Y if triangles form a Triforce or the letter N if they do not.

4 Test Data

Input	Output
3	1 Y
1	2 Y
0.00 0.00	3 N
10.00 0.00	
5.00 8.66	
0.00 0.00	
-5.00 -8.66	
5.00 -8.66	
10.00 0.00	
5.00 -8.66	
15.00 -8.66	
2	
289.89 294.11	
1106.42 -399.14	
1298.53 654.62	
289.89 294.11	
-718.75 -66.40	
97.78 -759.65	
1106.42 -399.14	
97.78 -759.65	
914.31 -1452.90	
3	
0.00 0.00	
20.00 10.00	
5.00 8.66	
0.00 0.00	
-5.00 -8.66	
5.00 -8.66	
10.00 0.00	
5.00 -8.66	
15.00 -8.66	