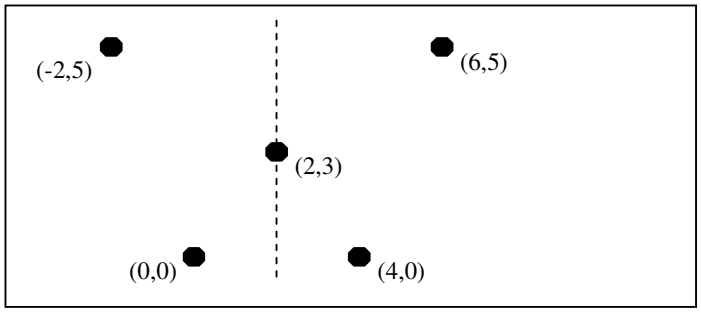
The 29th Annual ACM International Collegiate Programming Contest ASIA Regional - Seoul

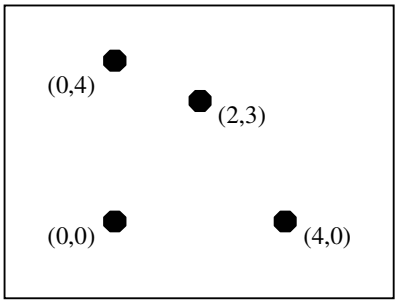
Problem B

Symmetry

Input: sym.in

The figure shown on the left is *left-right symmetric* as it is possible to fold the sheet of paper along a *vertical line*, drawn as a dashed line, and to cut the figure into two identical halves. The figure on the right is not left-right symmetric as it is impossible to find such a vertical line.





Write a program that determines whether a figure, drawn with dots, is left-right symmetric or not. The dots are all distinct.

Input

The input consists of T test cases. The number of test cases T is given in the first line of the input file. The first line of each test case contains an integer N, where $N(1 \le N \le 1{,}000)$ is the number of dots in a figure. Each of the following N lines contains the x-coordinate and y-coordinate of a dot. Both x-coordinates and y-coordinates are integers between –10,000 and 10,000, both inclusive.

Output

Print exactly one line for each test case. The line should contain `YES` if the figure is left-right symmetric, and `NO`, otherwise.

The following shows sample input and output for three test cases.

Sample Input (sym.in)	Output for the Sample Input
3 5 -2 5 0 0 6 5 4 0 2 3 4 2 3 0 4 4 0 0 0 4 5 14 6 10 5 10 6 14	YES NO YES