

Problem I. Point Mirror

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

There are N points on a number line. Initially, the i -th point is at coordinate A_i .

You can perform the following operations any number of times, in any order:

- Choose two distinct points i and j , and swap them.
- Choose two distinct points i and j , and mirror point i across point j . Formally, set $A_i := 2A_j - A_i$.

Is it possible to have the i -th point be at B_i after all operations for all $1 \leq i \leq N$?

Input

The input is given in the following format:

T
N
$A_1 B_1$
$A_2 B_2$
\vdots
$A_N B_N$
\vdots

- All input values are integers.
- $1 \leq T \leq 10^4$
- $1 \leq N \leq 2 \times 10^5$
- $-10^9 \leq A_i, B_i \leq 10^9$
- It is guaranteed that the sum of N over all test cases does not exceed 2×10^5 .

Output

For each test case, output **YES** if it is possible to reach the desired final configuration, and **NO** otherwise.

You can output the answer in any case. For example, the strings **YES**, **yes**, and **yEs** will all be recognized as positive responses.

Examples

standard input	standard output
6	YES
1	NO
1 1	YES
1	NO
0 2	NO
2	YES
0 3	
1 2	
2	
1 5	
2 7	
3	
-3 5	
9 13	
7 5	
3	
-3 11	
9 25	
7 9	

Note

Test case 3: One valid sequence of operations is:

1. Start from coordinates $[0, 1]$.
2. Mirror point 1 across point 2. The coordinates become $[2, 1]$.
3. Swap point 1 with point 2. The coordinates become $[1, 2]$.
4. Mirror point 1 across point 2. The coordinates become $[3, 2]$.

Test cases 2, 4, and 5: It can be proven that it is impossible to have the points at the desired coordinates.