

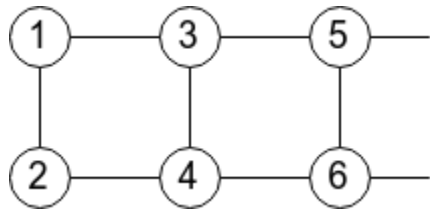
Bear and Ladder

Problem Code: **BRLADDER**

Bearland has infinitely many cities, numbered starting from 1. Some pairs of cities are connected with bidirectional roads:

- There are roads 1-2, 3-4, 5-6, 7-8, and so on (there is a road between cities $2*i+1$ and $2*i+2$ for every non-negative integer i).
- There are roads 1-3, 3-5, 5-7, 7-9, ... (between every two consecutive odd numbers).
- There are roads 2-4, 4-6, 6-8, 8-10, ... (between every two consecutive even numbers).

This is how the first few cities and roads between them look like:



You are given **Q** queries. In each query, for the given pair of different cities **a** and **b**, you should check if there is a road between them. For each query, print "YES" or "NO" accordingly.

Input

The first line of the input contains an integer **Q**, denoting the number of queries.

Each of the following **Q** lines contains two distinct integers **a** and **b**, denoting two cities in one query.

Output

For each query, output a single line containing the answer — "YES" if there is a road between the given cities **a** and **b**, and "NO" otherwise (without the quotes).

Constraints

- $1 \leq Q \leq 1000$
 - $1 \leq a, b \leq 10^9$
 - $a \neq b$
-

Example

Input:

7

1 4

4 3

5 4

10 12

1 3

999999999 1000000000

17 2384823

Output:

NO

YES

NO

YES

YES

YES

NO

Explanation

In the example test, the answer is "YES" for pairs (4, 3), (10, 12), (1, 3) and (999999999, 1000000000). Roads 3-4 and 1-3 you can see on the drawing in the statement.

The answer is "NO" for example for a pair (1, 4), because there is no road between cities 1 and 4.