

# Segment-tree

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            **6 seconds**  
Memory limit:         **512 megabytes**

Lyra and Bon Bon are playing a segment-tree game.

Lyra generates a query-tree  $G$  on a segment tree by calling algorithm 1  $QUERY(1, 0, 2^n - 1, L, R, \emptyset)$  using parameters  $n, L$  and  $R$ .

The query-tree  $G$  is described as a set of edges, and each edge is described as a tuple  $(u, v, w)$  that node  $u$  and node  $v$  is connected by an edge of value  $w$ .

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**algorithm 1** Generate query-tree

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**INPUT:** node's index  $id$ , node's range  $[l, r]$ , query's range  $[L, R]$ , query-tree  $G$

**OUTPUT:** query-tree  $G$

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1: function QUERY( $id, l, r, L, R, G$ )
2:   if  $L \leq l$  and  $r \leq R$  then
3:     return  $G$ 
4:   end if
5:    $mid \leftarrow (l + r) / 2$ 
6:   if  $L \leq mid$  then
7:      $G \leftarrow QUERY(id * 2, l, mid, L, R, G)$ 
8:     insert edge( $id, id * 2, 0$ ) into  $G$ 
9:   end if
10:  if  $mid < R$  then
11:     $G \leftarrow QUERY(id * 2 + 1, mid + 1, r, L, R, G)$ 
12:    insert edge( $id, id * 2 + 1, 1$ ) into  $G$ 
13:  end if
14:  return  $G$ 
15: end function
16:
```

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The game progresses turn by turn, and Lyra moves **first**.

In one move a player must choose at least two points  $[x_1, x_2, \dots, x_m]$ , and then remove them and all edge(s) connected to them.

It has some restrictions for sure:

1. Assume that  $x_1 < x_2 < \dots < x_m$ . For Lyra, the edges  $(x_1, x_2, 0), (x_2, x_3, 0), \dots, (x_{m-1}, x_m, 0)$  must exist in  $G$ . Similarly for Bon Bon, the edges  $(x_i, x_{i+1}, 1)$  must exist.
2. After either Bon Bon or Lyra's removal, the query-tree must not be split into two separate blocks.
3. The node 1 could not be chosen unless  $G$  will become empty after the operation.

The pony who cannot make a move loses. If both ponies play optimally, could Lyra ultimately win the game?

## Input

The first line contains an integer  $T$  ( $1 \leq T \leq 10^6$ ), representing the number of test cases.

Each test case contains one line, three integers  $n, L, R$  ( $1 \leq n \leq 61, 0 \leq L \leq R < 2^n$ ), separated by spaces.

## Output

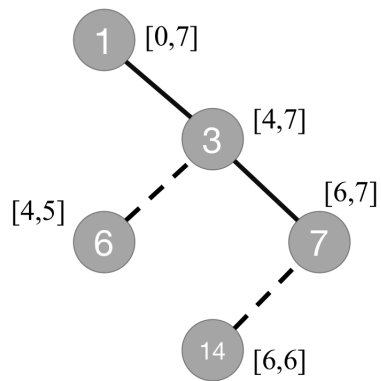
For each test case, output one line. If Lyra wins, output “Yes”, otherwise output “No” (without quotes).

## Example

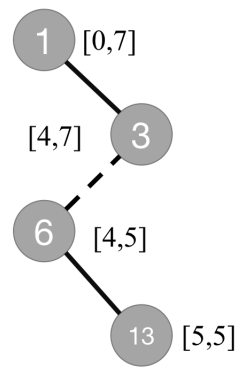
standard input	standard output
2	Yes
3 4 6	No
3 5 5	

## Note

The  $G$  of two test cases is in the following:



Test Case 1



Test Case 2