

Strategy (Tough)

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

This is the Tough version. The only difference between the easy and tough version is the constraints and number of test cases.

Alice and Bob have 3 kinds of chocolates. There are A chocolates of the first type and B of the second type. Both Alice and Bob love the third type of chocolate and want to have that one at any cost but being the most special and expensive they have only one of that type. To decide who gets the third kind of chocolate, Alice proposes the following rules: they will pick some chocolates of type 1 and 2 turn by turn. In each turn one of the following valid moves can be done:

- Pick some chocolates of type 1
- Pick some chocolates of type 2
- Pick equal number of chocolates of type 1 and 2

They have to pick atleast one chocolate in each turn. Whoever makes the last move wins and gets the third type of chocolate. Both Alice and Bob are very smart and choose optimally. However while telling the rules of the competition, Alice cheated a bit to ensure that she wins the game by deciding wo will take the first move. Did Alice decide to go first?

Input

The first line of input contains T , the number of test cases. T lines follow, each describing 1 test case.

$$1 \leq T \leq 10^5$$

Each test case consists of a single line of 2 space-separated integers A and B .

$$0 \leq A, B \leq 1000$$

Output

Output T lines, each containing "YES"if Alice decides to go first and "NO"otherwise.

Examples

standard input	standard output
1 0 1	YES
2 1 0 1 1	YES YES
1 1 2	NO