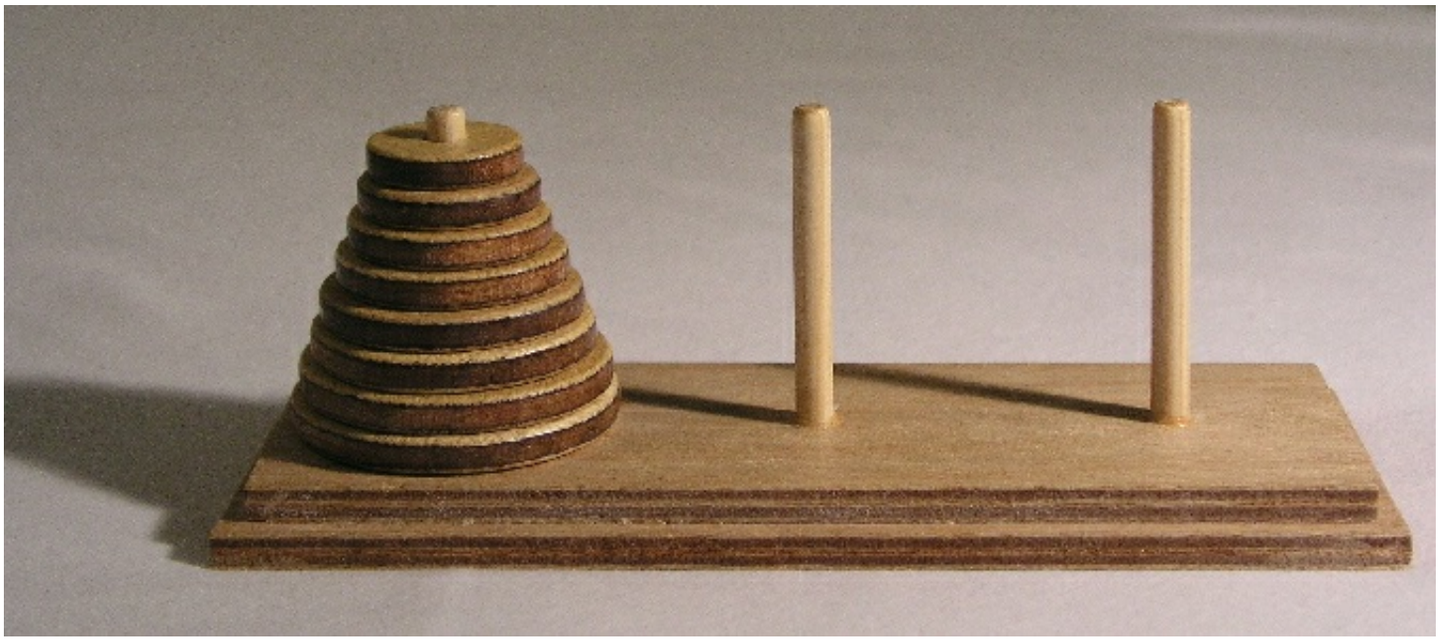
Tower of Hanoi

The Tower of Hanoi is a mathematical game. It consists of three rods, and a number of disks of different sizes which can slide onto any rod. The puzzle starts with the disks in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a conical shape.

The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

Only one disk can be moved at a time. Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack. No disk may be placed on top of a smaller disk.The minimum number of moves required to solve a Tower of Hanoi puzzle is 2^n - 1, where n is the number of disks.



In our problrm we have four rods instead of three. You are given **n**,the number of disks in the first rod and **m**,the number of moves you are allowed to do. If it is possible to move the entire stack into another rod using **m** moves (less than or equal to **m**) print "YES" if not print "NO".

INPUT

You are given the number of testcases **T** and each of the following **T** lines will contain two integers **n** and **m**

OUTPUT

Output n lines each containing the answer to the problem.

Sample Input

```
2
3 5
2 2
```

Sample Output

```
YES
NO
```

Limits

$1 \leq T \leq 1000$
$1 \leq n \leq 55$
$0 \leq m \leq 10^{18}$