Description:

The city of wizards are under attack! They are attacked by their worst enemy, the Vampires! And to defend his empire, the king of wizards summoned the most powerful and old wizard of the kingdom, *Kiatra.*

Kiatra has a special spell of creating exact duplicates of him but he can only cast 4 such spells simultaneously. Also, he needs 1 second before casting the next set of spells. So, for example Kiatra casts 4 spells at time 0, he will cast the next 4 spells at time 1 since he needs 1 second between each set of spells. Each spell creates another duplicate wizard capable of performing the same spell.

The city of wizards can be represented as a N by N grid (N is always odd). Kiatra stands at middle of the city and starts to cast spell at all the immediate neighboring cells (the four neighbor cells which share a side with the Kiatra cell) which makes duplicate wizards in the four cells. In the next second, the new wizards along with Kiatra again cast spells in their respective immediate neighbors creating new wizards and this goes on. **Please note that only one wizard will cast spells from each cell.** Also, the city is special! The borders are surrounded by mirrors, so if a wizard is standing at a cell which is at the border of the city(the cells having immediate neighbors less than 4) casts spell, the spell in the direction of the mirror will be reflected and hit back the wizard and hence, the new duplicate wizard will be created at the cell from where the spell was cast. The strength of a cell *S* is defined as the number of wizards standing on the cell. This can be pictorially represented as (here each cell represents the Strength of the cell *S*):

0	0	0
0	1	0
0	0	0

At time t = 0

0	1	0
1	1	1
0	1	0

At time t = 1

1	3	1
3	5	3
1	3	1

At time = 2, please note that the cell strength at border summed to 3 because of reflection from border.

6	7	6
7	9	7
6	7	6

At time = 3

The vampires are attacking from the air and each have a hitpoint H. Each vampire has been already ordered to attack a specific cell only with coordinates (i, j). If Strength S of the cell is greater than or equal to H at the time the vampire attacks the cell is safe.You are the minister to the king and are ordered to determine if a particular cell can be defended by the wizards so that if required help can be sent to Kiatra. Please note that initially at time t=0, Kiatra is standing at the center is ready to cast his first set of spells in next second.

Input:
Each input has the following format:
1. First line contains N, denoting the size of the city. Please note that N is always odd.
2. Second line contains Q the number of queries, each subsequent Q lines has following format:
   ○ Four spaced integers i, j, t, H where (i, j) denotes the ith row and jth column of the city (0 indexed), t denotes the time at which Vampire attacks and H denotes the hitpoint of the vampire

Output:
For each query in a new line print "YES" (without quotes) if the cell can be defended else print "NO"

Constraints:
3 <= N <= 1000
1 <= Q <= 10**7
0 <= i, j <= N-1
0 <= t <= 10**5
0 <= H <= 10**5

Sample Input 0:
3
3
1 1 1 1
2 1 5 3
2 2 10 3

Sample Output 0:
YES
YES
NO

Explanation:
Please refer to the above diagram to see strength S for different values of t, In the first query H and S both are equal to one and hence the answer YES. Rest of the queries are similar.

Sample Input 1:
5
2
1 1 1 2
2 4 3 3
Sample Output 1:
NO
YES

Explanation:
For the first query, cell at (1,1) did not have even a single wizard at t=1 and hence cannot be defended by the monster. In the second query, the cell at (2, 4) had 3 wizards hence S = 3 and were able to defend against monster with H = 3.