Problem E. Identical Parity

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Let the value of a sequence be the sum of all numbers in it.

Determine whether there exists a permutation of length n such that the values of all subsegments of length k of the permutation share the same parity. The values share the same parity means that they are all odd numbers or they are all even numbers.

A subsegment of a permutation is a contiguous subsequence of that permutation. A permutation of length n is a sequence in which each integer from 1 to n appears exactly once.

Input

The first line contains one integer T ($1 \le T \le 10^5$), the number of test cases.

For each test case, the only line contains two integers n, k ($1 \le k \le n \le 10^9$).

Output

For each test case, output "`Yes`" (without quotes) if there exists a valid permutation, or "`No`" (without quotes) otherwise.

You can output "`Yes`" and "`No`" in any case (for example, strings "`YES`", "`yEs`" and "`yes`" will be recognized as positive responses).

Example

standard input	standard output
3 3 1 4 2 5 3	No Yes Yes

Note

In the first test case, it can be shown that there does not exist any valid permutation.

In the second test case, $[1, 2, 3, 4]$ is one of the valid permutations. Its subsegments of length 2 are $[1, 2], [2, 3], [3, 4]$. Their values are $3, 5, 7$, respectively. They share the same parity.

In the third test case, $[1, 2, 3, 5, 4]$ is one of the valid permutations. Its subsegments of length 3 are $[1, 2, 3], [2, 3, 5], [3, 5, 4]$. Their values are $6, 10, 12$, respectively. They share the same parity.