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Please read [the new rule regarding the restriction on the use of AI tools](#).

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

B. Robin Hood and the Major Oak

time limit per test: 1 second  
memory limit per test: 256 megabytes

*In Sherwood, the trees are our shelter, and we are all children of the forest.*

The Major Oak in Sherwood is known for its majestic foliage, which provided shelter to Robin Hood and his band of merry men and women.

The Major Oak grows  $i^i$  new leaves in the  $i$ -th year. It starts with 1 leaf in year 1.

Leaves last for  $k$  years on the tree. In other words, leaves grown in year  $i$  last between years  $i$  and  $i + k - 1$  inclusive.

Robin considers even numbers lucky. Help Robin determine whether the Major Oak will have an even number of leaves in year  $n$ .

Input

The first line of the input contains a single integer  $t$  ( $1 \leq t \leq 10^4$ ) — the number of test cases.

Each test case consists of two integers  $n, k$  ( $1 \leq n \leq 10^9, 1 \leq k \leq n$ ) — the requested year and the number of years during which the leaves remain.

Output

For each test case, output one line, "YES" if in year  $n$  the Major Oak will have an even number of leaves and "NO" otherwise.

You can output the answer in any case (upper or lower). For example, the strings "yEs", "yes", "Yes", and "YES" will be recognized as positive responses.

Example

input	Copy
5	
1 1	
2 1	
2 2	
3 2	
4 4	
output	Copy
NO	
YES	
NO	
NO	
YES	

Note

In the first test case, there is only 1 leaf.

In the second test case,  $k = 1$ , so in the 2-nd year there will be  $2^2 = 4$  leaves.

In the third test case,  $k = 2$ , so in the 2-nd year there will be  $1 + 2^2 = 5$  leaves.

Codeforces Round 974 (Div. 3)

Finished

Practice

Virtual participation

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Start virtual contest

Submit?

Language: GNU G++20 13.2 (64 bit, wir

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
<a href="#">282274596</a>	Sep/21/2024 18:13	Time limit exceeded on test 3
<a href="#">282263376</a>	Sep/21/2024 18:06	Time limit exceeded on test 3

Problem tags

math

No tag edit access

In the fourth test case,  $k = 2$ , so in the 3-rd year there will be  $2^2 + 3^3 = 4 + 27 = 31$  leaves.

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