Problem V. Coins

Time limit 2000 ms
Mem limit 262144 kB

In Berland, there are two types of coins, having denominations of 2 and k burles.

Your task is to determine whether it is possible to represent n burles in coins, i. e. whether there exist non-negative integers x and y such that $2 \cdot x + k \cdot y = n$.

Input

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

The only line of each test case contains two integers n and k ($1 \le k \le n \le 10^{18}$; $k \neq 2$).

Output

For each test case, print `YES` if it is possible to represent n burles in coins; otherwise, print `NO`. You may print each letter in any case (`YES`, `yes`, `Yes` will all be recognized as positive answer, `NO`, `no` and `nO` will all be recognized as negative answer).

Examples

Input	Output
4 5 3 6 1 7 4 8 8	YES YES NO YES

Note

In the first test case, you can take one coin with denomination 2 and one coin with denomination $k = 3$.

In the second test case, you can take three coins with denomination 2. Alternatively, you can take six coins with denomination $k = 1$.

In the third test case, there is no way to represent 7 burles.

In the fourth test case, you can take one coin with denomination $k = 8$.