

Power of 2

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[English version](#)

Your task is to print whether given number **n** is a power of 2 or not.

Input

The first line of the standard input contains one integer **t** ($t < 10001$) which is the number of test cases.

In each of the next **t** lines there is an integer **n** ($0 < n \leq 2 \cdot 10^9$).

Output

Print *YES* if number **n** is a power of 2 or *NO* if it is not.

Example

Input:

4
1
2
3
4

Output:

YES
YES
NO
YES