

Problem E

Narcissistic number

Time limit: 3 seconds

Memory limit: 1024 megabytes

Problem Description

In number theory, a narcissistic number (also known as a pluperfect digital invariant (PPDI), an Armstrong number or a plus perfect number) in a given number base b is a number that is the sum of its own digits each raised to the power of the number of digits (denoted as k).

For example, the number 153 in base $b = 10$ is a narcissistic number, because $k = 3$ and $153 = 1^3 + 5^3 + 3^3 = 1 + 125 + 27$. The number 122 in base $b = 3$ is a narcissistic number, because $k = 3$ and $122 = 1^3 + 2^3 + 2^3 = 1 + 22 + 22$. But, the number 333 in base $b = 10$ is not a narcissistic number, because $k = 3$ and $333 \neq 3^3 + 3^3 + 3^3 = 27 + 27 + 27 = 81$. The number 222 in base $b = 3$ is not a narcissistic number, because $k = 3$ and $222 \neq 2^3 + 2^3 + 2^3 = 22 + 22 + 22 = 220$.

Your task is to write a program to determine whether the given number n in base b is a narcissistic number or not.

Input Format

The input contains several test cases. The first line stands for the number of test cases t . The next t lines will each contain two integer number, n and b , where n is the given number and b is the base. There is a space between n and b .

Output Format

For each input number, output “YES” if the input number is a narcissistic number, and “NO” otherwise.

Technical Specification

- $1 \leq t \leq 10,000$.
- $0 \leq n \leq 2^{54}$.
- $2 \leq b \leq 16$.

Sample Input 1

```
4
153 10
333 10
122 3
222 3
```

Sample Output 1

```
YES
NO
YES
NO
```

Almost blank page