# Killer Cages (killer)

Valerio is a big fan of different sudokus, despite being bad at solving them. He is particularly interested in those with *killer cages*. A *killer cage* is a region where all the numbers must be distinct and have a certain sum.

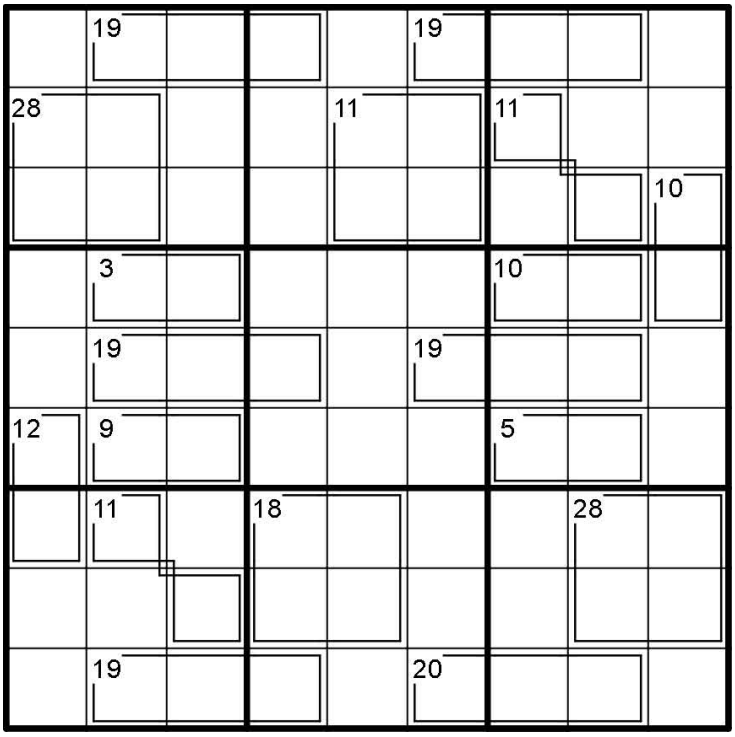


Figure 1: A sudoku with killer cages.

Valerio wants to get better at sudoku, so he is asking for your advice to improve. He will make you $T$ questions of the following form: Given $N$ and $K$, is there a **unique** way to write $N$ as sum of $K$ **distinct** positive integers?

☞ Among the attachments of this task you may find a template file `killer.*` with a sample incomplete implementation.

## Input

The first line of the input file contains a single integer $T$, the number of test cases. $T$ test cases follow.

Each test case consists of:

- a line containing the integers $N$ and $K$.

## Output

The output file must contain $T$ lines corresponding to the test cases, each consisting of either `"YES"` or `"NO"`.

## Constraints

- $1 \leq T \leq 10\,000$.
- $1 \leq N \leq 1\,000\,000\,000$.
- $1 \leq K \leq 1\,000\,000\,000$.

## Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (17 points) $T \leq 100$, $N \leq 10$, $K \leq 10$.

– **Subtask 3** (22 points) $N \leq 1000$, $K \leq 1000$.

– **Subtask 4** (33 points) $K \leq 100\,000$.

– **Subtask 5** (28 points) No additional limitations.

## Examples

| input | output |
|---|---|
| 6<br>9 1<br>5 2<br>4 2<br>11 4<br>8 3<br>12 6 | YES<br>NO<br>YES<br>YES<br>NO<br>NO |
| 5<br>100 12<br>92 13<br>1000 60<br>1000 10<br>420 69 | NO<br>YES<br>NO<br>NO<br>NO |

## Explanation

In the **first sample case** Valerio asks you 6 questions:

- The only way to write 9 as a sum of 1 distinct positive integer is 9. The answer is "YES".
- It is possible to write 5 as both $1+4$ and $2+3$. The answer is "NO".
- The only way to write 4 as a sum of 2 distinct positive integers is $1+3$. The answer is "YES".

- The only way to write 11 as a sum of 4 distinct positive integers is $1 + 2 + 3 + 5$. The answer is `"YES"`.
- It is possible to write 8 as both $1 + 2 + 5$ and $1 + 3 + 4$. The answer is `"NO"`.
- It is not possible to write 12 as sum of 6 distinct positive integers. The answer is `"NO"`.