

Problem About Base

Time Limit: 1.0s **Memory Limit:** 256M

Sinan is studying base arithmetic at his math course. His teacher, promises him a candy for each given number to be rewritten in the base \mathbf{K} . Sinan wants all the candies and for that, he needs your help.

For a number to be rewritten in the base \mathbf{K} :

$$\mathbf{N} = \mathbf{a}_n \cdot \mathbf{K}^n + \mathbf{a}_{n-1} \cdot \mathbf{K}^{n-1} + \dots + \mathbf{a}_1 \cdot \mathbf{K}^1 + \mathbf{a}_0 \cdot \mathbf{K}^0$$

Sinan needs to write the numbers as a series consists of \mathbf{a}_i 's without unnecessary 0's at the beginning for candies.

Input

The first line consists of integer \mathbf{q} .

Next \mathbf{q} lines will contain integers \mathbf{N}_i and \mathbf{K}_i .

Batch #1:

- $1 \leq \mathbf{q} \leq 100$
- $1 \leq \mathbf{N}_i \leq 100$
- $2 \leq \mathbf{K}_i \leq 10$

Batch #2:

- $1 \leq \mathbf{q} \leq 10^4$
- $1 \leq \mathbf{N}_i \leq 10^{18}$
- $2 \leq \mathbf{K}_i \leq 10$

Output

Print \mathbf{q} lines. Each line should contain \mathbf{N}_i in base \mathbf{K}_i , the list of \mathbf{A} .

Samples

Input:

```
2
5 2
7 3
```

Output:

```
101
21
```

Input:

```
3
25 10
25 4
25 3
```

Output:

```
25
121
221
```

Explanation

1. Output

- $5 = 1 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0$
- $7 = 2 \cdot 3^1 + 1 \cdot 3^0$