

Positional notations

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[English version](#)

Your task is to change number **n** from decimal to in base-**p** positional notation.

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 are two numbers: $n < 22 \cdot 10^8$ and $p < 17$ (**n** - number in decimal, **p** - base in which you should print number **n**).

Output

For each test, print number **n** in base-**p** positional notation.

Example

Input:

```
7
4 5
4 3
4 2
4 4
12 16
123 10
123 13
```

Output:

```
4
11
100
10
c
123
96
```