

6173 B-Casting

Casting around for problems leads us to combine modular arithmetic with different integer bases, particularly the problem of computing values modulo $b - 1$, where b is the base in which the value is represented. For example,

$$\begin{aligned}7829_{10} \bmod 9 &= 8 \\ 37777777777777773_8 \bmod 7 &= 6 \\ 123456_7 \bmod 6 &= 3\end{aligned}$$

(Note that $37777777777777773_8 = 1125899906842619_{10}$ and $123456_7 = 22875_{10}$.)

Your job is to write a program that reads integer values in various bases and computes the remainder after dividing these values by one less than the input base.

Input

The first line of input contains a single integer P , ($1 \leq P \leq 1000$), which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input containing three space-separated values. The first is an integer which is the data set number. The second is an integer which is the number, B ($2 \leq B \leq 10$), denoting a numeric base. The third is an unsigned number, D , in base B representation. For this problem, the number of numeric characters in D will be limited to 10,000,000.

Output

For each data set there is a single line of output. It contains the data set number followed by a single space which is then followed by the remainder resulting from dividing D by $(B - 1)$.

Sample Input

```
5
1 10 7829
2 7 123456
3 6 432504023545112
4 8 37777777777777773
5 2 101101000101010101011011100010100010101010101010111
```

Sample Output

```
1 8
2 3
3 1
4 6
5 0
```