

A *partition* of an integer n is a set of positive integers which sum to n , typically written in descending order. For example:

$$10 = 4+3+2+1$$

A partition is m -ary if each term in the partition is a power of m . For example, the 3-ary partitions of 9 are:

$$\begin{aligned} &9 \\ &3+3+3 \\ &3+3+1+1+1 \\ &3+1+1+1+1+1+1 \\ &1+1+1+1+1+1+1+1+1 \end{aligned}$$

Write a program to find the number of m -ary partitions of an integer n .

Input

The first line of input contains a single decimal 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. The line contains the data set number, K , followed by the base of powers, m , ($3 \leq m \leq 100$), followed by a space, followed by the integer, n , ($3 \leq n \leq 10000$), for which the number of m -ary partitions is to be found.

Output

For each data set there is one line of output. The output line contains the data set number, K , a space, and the number of m -ary partitions of n . The result should fit in a 32-bit unsigned integer.

Sample Input

```
5
1 3 9
2 3 47
3 5 123
4 7 4321
5 97 9999
```

Sample Output

```
1 5
2 63
3 75
4 144236
5 111
```