B • Sum Squared Digits Function

The *Sum Squared Digits* function, **SSD(b, n)** of a positive integer **n**, in base **b** is defined by representing **n** in base **b** as in:

$$n \;=\; a_0 \;+\; a_1*b \;+\; a_2*b^2 \;+\; \dots$$

then:

$$\text{SSD}(b,\ n)\ =\ a_0{}^2\ +\ a_1{}^2\ +\ a_2{}^2\ +\ \dots$$

is the sum of squares of the digits of the representation.

Write a program to compute the *Sum Squared Digits* function of an input positive number.

Input

The first line of input contains a single decimal integer P, $(1 \leq P \leq 10000)$, 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. It contains the data set number, **K,** followed by the base, **b** (*3 ≤ b ≤ 16*) as a decimal integer, followed by the positive integer, **n** (as a decimal integer) for which the *Sum Squared Digits* function is to be computed with respect to the base **b**. **n** will fit in a 32 bit *unsigned* integer.

Output

For each data set there is a single line of output.

The single line of output consists of the data set number, K, followed by a single space followed by the value of **SSD(b, n)** as a decimal integer.

Sample Input	Sample Output
3	1 30
1 10 1234	2 19
2 3 98765	3 696
3 16 987654321	