1021 – Painful Bases

As you know that sometimes base conversion is a painful task. But still there are interesting facts in bases.

For convenience let's assume that we are dealing with the bases from 2 to 16. The valid symbols are **0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E and F**. And you can assume that all the numbers given in this problem are valid. For example **67AB** is not a valid number of base **11**, since the allowed digits for base **11** are **0** to **A**.

Now in this problem you are given a base, an integer **K** and a valid number in the base which contains distinct digits. You have to find the number of permutations of the given number which are divisible by **K**. **K** is given in decimal.

For this problem, you can assume that numbers with leading zeroes are allowed. So, **096** is a valid integer.

Input

Input starts with an integer **T (≤ 100)**, denoting the number of test cases.

Each case starts with a blank line. After that there will be two integers, **base (2 ≤ base ≤ 16)** and **K (1 ≤ K ≤ 20)**. The next line contains a valid integer in that base which contains distinct digits, that means in that number no digit occurs more than once.

Output

For each case, print the case number and the desired result.

Sample Input	Output for Sample Input
3 2 2 10 10 2 5681 16 1 ABCDEF0123456789	Case 1: 1 Case 2: 12 Case 3: 20922789888000