Finally, desperate Bilbo asked Gollum the following programming puzzle. Help the poor creature with his dinner!

$A = \{A[1], A[2], \ldots, A[N]\}$ is a sequence of lowercase letters.

$B = \{B[1], B[2], \ldots, B[K]\}$ is another such sequence. B is called a subsequence of A if there exists a set of integers $S = \{S[1], S[2], \ldots, S[K]\}$ such that the following two conditions are true:

(i) $1 \leq S[1] < S[2] < \ldots < S[K] \leq N$

(ii) $A[S[i]] = B[i]$ for all $1 \leq i \leq K$

Here, S is called an occurrence of B in A. S is called the earliest occurrence of B in A, if there is no other occurrence Y such that, $Y[j] < S[j]$ for some $1 \leq j \leq K$.

The earliest occurrence S of B in A is called a weak occurrence if, $S[i+1]S[i] \leq M$ for all $1 \leq i < K$. Here, M is called the weakness limit.

For example, if $M = 2$ then $\{$b, c, d$\}$ has a weak occurrence in $\{$a, b, y, c, d, c, d$\}$, but $\{$a, c, d$\}$ doesn't.

You are given a forbidden sequence F of lowercase letters and a weakness limit M. A sequence X of length N is called strong if one of the following conditions is true:

(i) the earliest occurrence of F in X is not a weak occurrence or

(ii) F doesn't occur in X at all.

Write a program to calculate the number of strong sequences of lowercase letters of length N. Print the answer *modulo* 1000000007.

Input

The first line of the input contains T, the number of test cases. $T \leq 5000$. Each test case consists of two lines. The first line contains a non-empty string of lowercase letters that denotes the forbidden sequence F which contains no more than 100 characters. The next line contains two positive integers M $(1 \leq M \leq 10)$ and N $(1 \leq N \leq 10^9)$, where M denotes the weakness limit and N denotes the desired length of the strong sequences.

Output

For each set of input, print the output in the format, 'Case X: Y' where X is the serial of the input and Y is the desired output (see the sample output for clarification).

Sample Input

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2
ab
2 4
ww
1 2
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Sample Output

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Case 1: 453750
Case 2: 675
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