JUMPin' JUMP UP!!!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	4 seconds
Memory limit:	256 megabytes

Tired of solving mathematical equations, DreamGrid starts to solve equations related to strings: for two strings x and y with the same length consisting of lowercase English letters, calculate $f(x, y, n)$, which is defined as the number of nonempty strings z consisting of lowercase English letters such that $xz = zy$ and the length of z does not exceed n.

DreamGrid has two strings $s = s_1 s_2 \ldots s_n$ and $t = t_1 t_2 \ldots t_m$. He would like to ask several questions about the value of $f(t, s[x..(x + m - 1)], y)$, where $s[x..(x + m - 1)]$ is the substring of s starting from s_x with length m and y is a given number.

Input

There are multiple test cases. The first line of input contains an integer T, indicating the number of test cases. For each test case:

The first line contains three integers n and m and q ($1 \le n, m, q \le 10^5, m \le n$) – the length of s, the length of t and the number of questions.

The second line contains n lowercase English letters denoting the string s. The third line contains m lowercase English letters denoting the string t.

Each of the next q lines contains two integers x_i and y_i ($1 \le x_i \le n + 1 - m, 1 \le y_i \le 10^{18}$) denoting the i-th question.

It is guaranteed that neither the sum of all n nor the sum of all q exceeds 10^6.

Output

For each question, output an integer denoting the answer.

Example

standard input	standard output
1 4 2 3 abcd ba 1 2 2 2 3 2	1 0 0