Master Fei's Trial
Time Limit: 10s

Master Fei is a martial arts master and really loves to write books. He has published so many martial stories with various genres, from romantic, philosophy, to mystery topics. He also owns a dojo in a remote peaceful village.

Attracted by his mastery, lots of people come to his dojo with one hope: accepted as his disciple. Unfortunately, many people attempt Master Fei's trial with no luck because the test is so challenging and hard.

As you heard that so many people fail during the trial, you decide to push your luck in Master Fei's trial and come to visit his dojo. During the day of the trial, you are very surprised by the test as Master Fei does not examine your muscle strength nor your fighting skill. Instead, Master Fei decides to test your brain by asking you to search some words or syllables in the books written by Master Fei himself.

You become very confident with the task because you really like to read his books. However, Master Fei is not just any ordinary person. He asks you to follow some rules as you search through the words in his books, as follow:

1. The search term you have to find can be found by reading each letter in a word backwardly or forwardly *N* times, that shows how many times you can visit each of them. For example, for N = *2*, you may read "HIA" as "HIHIA" or "AIAIH" or "AIHIA" or "IHIA" or "IAIH" or "HIAIH"
2. You cannot join two or more words in the book which are separated by spaces.
3. All the letters in the books are not case sensitive, so 'A' is read as the same as 'a'

As a computer science student, you develop a program right away to find out how many word/syllable that match in Master Fei's book.

Input
There are T cases, each case followed by a paragraph containing 0<L<10 lines of sentences and ended by "--". Each sentences can be filled by letters "a-z" "A-Z", symbols like "." etc, or number "0-9". There will be no more than 20 words in each sentence, and the maximum length for each word is 15.
The next line is 0<W<25 number of search terms you need to find in the paragraph, followed by 0<N<10. The length of the search term will be no more than 10.

Output
Output the case number followed by how many times you can find the search term in the paragraph.

Sample Input
2
“Hi, How are you?”, said Michelle
“I am fine”, said Romeo
“Aha!”, said Anthony, who caught Romeo talking with Michelle.
--
4 1
Who
Era
Hi
I
Once upon a time, there is a tiger who rules over the forest.
But then the villagers set the forest on fire and the tiger died burned to ashes.
--
1 2
Rege

Sample Output
Case 1: 13
Case 2: 3

Explanation:
In case 1, there are:
1 who
1 era
1 hi
10 i
So the total of them makes the sum become 13.

In case 2, there are 3 Rege’s found (2 from ‘tiger’, and 1 from ‘villagers’).

T	i	g	e	r

g e r <-
-> e
We can go backward because the input for N is 2, so we can visit the same letters as many as 2 times.