

# Problem B: Fake Writing

Filename: `fakewriting`

Time limit: 1 second

Your Book Report is due tonight, and you haven't even started! Worse still, all your pencils and pens have broken, so you can't write a thing! Fortunately, your English teacher has poor eyesight, and will give your paper a passing grade as long as it has the same ratio of vowels (A, E, I, O and U) to consonants (all other letters, including Y) that was present in your teacher's favorite excerpt book you were supposed to read. You also have a collection of notes which you need to repurpose for the assignment. Given an excerpt from the book, you need to know the number of possible book reports you could make from your notes.

## Problem

Given the text of your notes and an excerpt from the book you are supposed to do a report on, with all spaces and punctuation removed (in other words, your notes and the excerpt will consist of only lower-case ASCII english letters [a-z]), report the total number of substrings from your notes with an equal ratio of vowels to consonants. A substring is a subset of a string that may have letters removed from the beginning or the end of the string, but not from the middle. For example, "ar", "learn", and "lear" are substrings of "learn", but "er" is not a substring of "learn". Substrings are not necessarily distinct.

## Input

Input will begin with a single integer **c** representing the number of test cases

The first line of each test case will contain string **n**, representing your notes. The second line of each test case will contain string **b**, representing the excerpt from the book.

## Output

For each test case, output a single integer, the number of substrings of the first string with the same ratio of vowels to consonants as the second string.

## Input Bounds and Corresponding Credit

| 40 Points   | 60 Points   |
|---|---|
| <ul style="list-style-type: none"><li>• <math>1 \leq c \leq 20</math></li><li>• <math>1 \leq  n  \leq 1000</math></li><li>• <math>1 \leq  b  \leq 1000</math></li></ul> | <ul style="list-style-type: none"><li>• <math>1 \leq c \leq 35</math></li><li>• <math>1 \leq  n  \leq 10^5</math></li><li>• <math>1 \leq  b  \leq 10^5</math></li></ul> |

## **Samples**

| Input | Output |
|-------|--------|
| 2     | 4      |
| learn | 3      |
| ab    |        |
| ii    |        |
| u     |        |

## **Sample Explanation**

First case: the excerpt from the book, “ab” has a 1:1 ratio of vowels to consonants. Therefore, any substring with an equal number of consonants and vowels in our notes, “learn”, will make a valid essay. There are 4 substrings that satisfy this condition: “le”, “ar”, “earn”, and “lear”.

Second Case: the excerpt from the book, “u” is entirely vowels. Therefore, the substrings “i” (formed by taking the first letter of our notes and removing the second), “i” (formed by taking the second letter of our notes and removing the first), and “ii” (the entirety of our notes) all make a valid essay