FCRH

Description

Trand Ultra is an antivirus software company in the Catbug Kingdom. In order to gain more market share, Trand Ultra is planing to develop a brain new program, which must detect a new type malware: FCRH, very well.

However, FCRH is a clever virus that will add some meaningless padding to the beginning or ending of itself. Moreover, FCRH will encrypt itself with substitution cipher (An one to one and onto function that maps character to character) if it find some programs trying to detect him. Hence, Trand Ultra ask their best engineer, Jain-ge, to write a prototype and check whether FCRH is possible to be detected efficiently.

Jain-ge has already came up with an algorithm **KDD**(KNN-Detect-Dev) based on **KNN**, but the definition of distance is too complicate to be implemented efficiently. So Jain-ge turn to his best friend, you, to help him finish the program.

Input

The first line contains an integer T indicating the total number of test cases. Each test case consist of two strings A, B, representing two programs P_A, P_B.

- $1 \leq T \leq 15$
- $1 \leq |A|, |B| \leq 4000$
- A, B are consist of lower case alphabets.

Output

Output the distance of P_A and P_B for each test case.

- $dist(P_A, P_B) = \sum_{1 \leq i \leq min(|A|,|B|)} \sum_{0 \leq j \leq |A|-i} \sum_{0 \leq k \leq |B|-i} sim(A[j..j+i-1], B[k..k+i-1])$
- $sim(A, B) =$ `exist substitution cipher S s.t.` $S(A) = B$ `then` 0 `else` $|A|$

Sample Input

```
2
ab
cd
ab
cc
```

Sample Output

```
0
2
```