

## 7023 King's test to his sons

The King of France has turned old. He would like one of his three sons to take up his place as the next King. But he doesn't want them to fight over the throne after his death. Over so many years in the past, his sons have been fighting with each other over trifles. But he feels that deep inside their hearts, the three brothers love each other. The King believes that he can bring back the love and harmony among his sons which was present in their childhood. He has asked Leonardo to help him accomplish this task so that his sons cherish their relationship again. So, Leonardo has come up with a game that will force all three of them to play together.

The factory, just on the boundary of the kingdom, produces special kind of gold chips. Each gold chip is inscribed with a lowercase letter of the English alphabet, called its *nameLetter*. There is also a unique integer called *aurumNumber* associated with each gold chip which is inscribed on the other side of the gold chip. These chips also have special grooves on their ends which can be used to attach gold chips one after the other and make a long solid linear chain out of them.

On Leonardo's advice the King has decided to call all his 3 sons for a small collective exercise. Leonardo has made three chains *A*, *B* and *C* containing the same number of gold chips. The gold chips in each of these chains are arranged in the increasing order of their *aurumNumbers*. Leonardo gives a chain to each of the sons. The task given to the sons is that each of them has to create a chain, for which he may remove some of the gold chips from his chain. It is necessary that all the three new chains thus created must have the same *nameLetters* when read from left to right. All the removed gold chips will be donated for charity. Each new gold chain must also have the gold chips arranged in the increasing order of their *aurumNumber*. If the sons succeed in doing this, they get to keep the gold chain with themselves. They must donate the entire chain with all of the gold chips for charity if they fail to create such chains.

All of the three sons are very greedy and therefore they want to remove the minimum number of gold chips from their respective gold chains. You have to find out that what is the minimum number of total gold chips that the three sons have to donate in order to complete this exercise successfully.

### Input

The first line of the input contains an integer *T* which is the number of test cases to follow. Starting from the next line, each test case consists of three strings *A*, *B* and *C* in separate lines. Each of these strings is the sequence of *nameLetters* in the order of the gold chips (which are arranged in the increasing order of their *aurumNumber*) in the gold chain.

### Output

For each of the test cases, print the minimum number of total gold chips which the three sons will have to donate for charity.

### Constraints:

- $1 \leq T \leq 13$
- $1 \leq |A|, |B|, |C| \leq 450$
- $|A| = |B| = |C|$

Here,  $|A|$  denotes the length of a string *A*. Similarly  $|B|$  for *B* and  $|C|$  for *C*.

### Explanation:

**Case 1:** The gold chips donated by the first son are ‘m’ and ‘c’. The second son donates ‘m’ and ‘d’ and the third son donates ‘d’ and ‘c’. This leaves “acicp” as the *nameLetters* on the gold chains they create.

**Case 2:** The gold chips donated by the sons are ‘a’, ‘a’ and ‘b’, respectively. This leaves each of them with “ab”.

### Sample Input

```
2
acmicpc
acmicpd
acdicpc
aab
aba
abb
```

### Sample Output

```
6
3
```