

[C2] Duel of Swings (300 pts)

Time Limit: 1s
Memory Limit: 512MB

Problem Description

En Garde! The man quickly swings his fencing sword at you, Wayd Blanc. You have joined this underground to-the-death fencing competition to gather information about the competition's organizer, Neloc Jr.

Your current opponent is the undefeated to-the-death fencing champion, Mr. Swish. From observing previous matches, you have noticed that Mr. Swish has 26 different swings that you choose to represent with capital letters. You decide to call a chain of these swings a combo. Note that even a singular swing is considered a combo.

At the sound of the starting bell, Mr. Swish opens up with an opening combo that contains all of the moves he will use in the rest of the fight. More specifically, throughout the fight Mr. Swish will use a sequence of swings taken from his opening combo O . An example of the opening combo is located below:

ABABABCC

From this opening combo, the subcombos he will use during the rest of the fight are enumerated below. More explicitly, subcombos are all the substrings of the opening combo.

As the national champion for not-to-the-death fencing, you need to quickly develop counterattacks for each subcombo your opponent has. To be precise, a counterattack is needed for each unique subcombo in the opening combo.

You then decide that you want to impress Neloc Jr. by minimizing the number of counterattacks you use. From your expert skill, you are able to come up with a single counterattack against multiple subcombos once certain conditions are met:

1. A (complete) cyclic repetition of a subcombo can be handled by a single counterattack (e.g $IJK = IJKIJK = IJKIJKIJK$).
2. A (complete) cyclic repetition of a subcombo that starts midway can be handled by a single counterattack (e.g $IJK = JKI = KIJ = KIJKIJKIJK$). Note that the order matters (e.g. $IJK \neq JIK$).

If we apply these conditions to the subcombos from the opening combo above, we only need to prepare 20 counterattacks for the *unique* subcombos listed below.

A, B, C
AB, BC,
ABA, BAB, ABC, BCC,
BABC, ABCC,
ABABA, BABAB, ABABC, BABCC,
BABABC, ABABCC,
ABABABC, BABABCC,
ABABABCC

Furthermore, here are the equivalent subcombos that can be handled by a single counterattack:

AB = BA = ABAB = ABABAB
C = CC

With this information in mind, what is the minimum number of counterattacks C you need to prepare to defeat Mr. Swish and also impress Neloc Jr.?

Input Specification

Input will begin with an integer T denoting the number of test cases. T test cases follow.

Each test case contains only one line containing a string consisting of capital letters.

Output Specification

For each test case, output an integer C denoting the minimum number of counterattacks needed to defeat Mr. Swish.

Constraints

$$1 \leq T \leq 10$$

$$1 \leq \text{length}(O) \leq 50$$

Sample Input

```
3
ABCD
ABCDABCD
ABABABCC
```

Sample Output

```
10
22
20
```

Explanation

For the first test case, below are the subcombos that need to be countered. There aren't any counters that could cover multiple subcombos.

A, B, C, D, AB, BC, CD, ABC, BCD, ABCD

For test case 2, There are 26 unique subcombos. Below shows a case where subcombos are covered by the same counter.

ABCD = BCDA = CDAB = DABC = ABCDABCD

Test case 3 is the example given in the description.