11151 Longest Palindrome

A **palindrome** is a string that reads the same from the left as it does from the right. For example, I, GAG and MADAM are palindromes, but ADAM is not. Here, we consider also the *empty string* as a palindrome.

Some *longer* palindromic words in English

TATTARRATTAT (a knock on the door)

RACECAR

ROTATOR

PULLUP

REDDER ... (Source: Wikipedia)

From any non-palindromic string, you can always take away some letters, and get a palindromic subsequence. For example, given the string ADAM, you remove the letter M and get a palindrome ADA.

Write a program to determine the length of the longest palindrome you can get from a string.

Input

The first line of input contains an integer T (≤ 60). Each of the next T lines is a string, whose length is always less than 1000.

For $\geq 90\%$ of the test cases, string length ≤ 255.

Output

For each input string, your program should print the length of the longest palindrome you can get by removing zero or more characters from it.
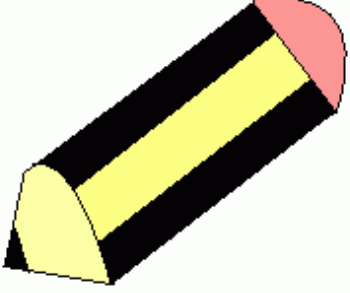
Sample Input

```
2
ADAM
MADAM
```

Sample Output

```
3
5
```