4144 - Greatest K-Palindrome Substring

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Palindrome is a string that can be read in the same way in either forward or backward direction. For example: ABBA is a palindrome, MOM is also a palindrome, but MATE is not. A non-palindrome string can be transformed into a palindrome by changing some of its characters. We call a string a k -palindrome if it can be turned into a palindrome by changing at most k characters. By this definition, a regular palindrome string is 0-palindrome.

Given a string S of length N that contains only lowercase characters (`a'... 'z') and an integer k , find the longest substring of S which is k -palindrome.

Input

The first line of the input contains an integer T , the number of test cases to follow. Each case consists of string S ($1 \leq |S| \leq 1000$) and integer K ($0 \leq K \leq |S|$) . String S consists of lowercase characters (`a' ... `z')

only. $|S|$ denotes the length of string S .

Output

For each case, print in a single line: the length of the longest substring of S which is k -palindrome.

Sample Input

```
3
abba 0
mate 1
zabcddcbxy 1
```

Sample Output

```
4
3
8
```

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