

## 4144 Greatest K-Palindrome Substring

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
zabdcddcbxy 1
```

### Sample Output

```
4
3
8
```