1. What is the output of the following code?

def mystery(a):
    if len(a) <= 2:
        return a
    x = len(a)//2
    return mystery(a[:x] + a[x+1:]) + a[x]
print(mystery('1234567'))
2. What is the output of the following code?

```python
def mystery2(a):
    if len(a) <= 2:
        return a
    x = len(a)//2
    return mystery2(a[:x]) + a[x] + mystery2(a[x+1:]),
print(mystery2('1234567'))
```

3. What is the output of the following code?

```python
def mystery3(a):
    if len(a) <= 2:
        return a
    x = len(a)//2
    return a[x] + mystery3(a[x+1:]) + mystery3(a[:x])
print(mystery3('1234567'))
```
4. Write a recursive function `no_duplicate_e` that takes a string `s` and returns the string after replacing all occurrences of `'ee'` with `'e'`.

5. Write a recursive function `mirror` that takes a string `s` and returns the string "mirrored". For example, `'ah'` becomes `'ahha'`.
6. Write a recursive function `duplicate` that takes a string `s` and returns the string with each letter duplicated. For example, 'ah' becomes 'aahh'.

7. Write a recursive function `ia_pal` that takes a string `s` and returns True if `s` is a palindrome and False otherwise. A string is a palindrome if it reads the same forward and backward.