1. Given the following list:

```
L = ["blue", "green", "indigo", "mauve", "orange", "red", "violet",
"yellow"]
```

(a) How many steps does it take to search for the value "`orange`" in the list using linear search? **Show your work**.

Step 0: blue   3. mauve   5 steps
1: green   4. (orange)
2: indigo

(b) How many steps does it take to search for the value "`orange`" in the list using binary search? **Show your work**.

1. blue green indigo mauve orange red, violet yellow
    orange > midpoint ⟂ midpoint
2. (orange) red violet   2 steps
    Orange found

(c) Show the values for `low`, `high`, and `mid` for each comparison step in searching for the color "`violet`" in the list using binary search.

1: low = 0
   high = 7
   mid = 3

2: low = 4
   high = 6
   mid = 5