Exam 2 makeup problems

CSCI 110 Section 1

1) What's the difference between a class and an instance?

2) What's printed when mystery(11) is called?

```
void mystery(int n) {
    if (n >= 40) {
        System.out.println("lion");
        return;
    }
    mystery(n * 3);
    System.out.println(n);
    System.out.println("boa");
}
```

For questions 3 and 4:

```
class Lion {
    private double maneQuality;

    public Lion(double maneQuality) {
        this.maneQuality = maneQuality;
    }

    public double getManeQuality() {
        return maneQuality;
    }

    public void groomSelf() {
        maneQuality += 10;
    }
}
```

3) What's printed by the below block of code?

```
Lion lion = new Lion(50.0);
lion.groomSelf();
System.out.println(lion.getManeQuality());
lion.groomSelf();
lion.groomSelf();
System.out.println(lion.getManeQuality());
```

4) Say you have the following function. What does the code below it print? Why?

```
Lion mystery(Lion lion) {
    lion = new Lion(35.0);
    return lion;
}

// ...sometime later...

Lion lion = new Lion(50.0);
System.out.println(lion.getManeQuality());
lion = mystery(lion);
System.out.println(lion.getManeQuality());
```

5) In what order are the following statements executed?

```
class SomeClass {
    static void someFn() {
                ____        ____    ____
            for (int i = 0; i < 2; i++) {
    ____        System.out.println(“hello”);
            }
    }

    static void otherFn() {

    ____    someFn();

    }

    public static void main(String[] args) {
    ____    System.out.println("goodbye");
    ____    otherFn();
    ____    System.out.println("done");

    }
}
```

6) Implement a class that represents a glass of water. Create a constructor that initializes the water level to 100, and add drink() and refill() methods.

7) Write a function that translates a number grade (represented as a double) to a letter grade.

8) Say there's a function isAngry that takes an integer and returns whether a number is angry. Write a function that takes a lower bound and an upper bound, and returns how many numbers are NOT angry between the lower bound and upper bound (inclusive).

9) Write a function that takes an ArrayList<Float> and replaces each number with the square of itself.

10) Say monthly listener counts on Spotify are represented as an array of double. Write a function that returns the average monthly listener count given an array of double.

11) Write a function that takes a copy of an array and returns a copy of that array that has been reversed.

12) Write a function that replaces the second column of a 2D array of booleans with the value true.