CSE 8B - Week 6 Discussion Worksheet
Polymorphism Review

Drawable.java

```java
public interface Drawable {
    void draw(); // What is the access modifier on this method?
}
```

Colorable.java

```java
public interface Colorable {
    void color();
}
```

Shape.java

```java
public abstract class Shape implements Drawable, Colorable {
    public String name;
    public Shape(String name) {
        this.name = name;
    }
}
```

Quadrilateral.java

```java
public abstract class Quadrilateral extends Shape {
    private int area;

    public Quadrilateral(String name, int area) {
        super(name);
        this.area = area; // What happens if this line is above super(name);
    }

    public int getArea() {
        return this.area;
    }

    public abstract boolean compareAreas(Quadrilateral quad);
}
```

Rectangle.java

```java
public class Rectangle extends Quadrilateral {
    public Rectangle() {
        super("Rectangle", 100); // What happens if we don't include this line?
    }

    @Override
    public boolean compareAreas(Quadrilateral quad) {
        if(_______________________________________) { // What's another way?
            System.out.println("Comparing against Square!");
        }

        if(____________________________________________) {
            System.out.println("Comparing against Rectangle!");
        }
        // Anything wrong with this function?
        return this.getArea() > quad.getArea();
    }

    @Override // Why are we implementing this method?
    public void draw() {
        System.out.println("---");
        System.out.println("| |");
        System.out.println("| |");
        System.out.println("| |");
        System.out.println("---");
    }

    @Override
    public void color() {
        System.out.println("My color is red!");
    }
}
```

Square.java

```
public class Square extends Quadrilateral {
    public Square() {
        super("Square", 100);
    }

    @Override
    public boolean compareAreas(Quadrilateral quad) {
        int area = this.getArea(); // Why is this line okay?

        if(_________________________________) {
            System.out.println("Don't like rectangles! Doubling area...");
            area *= 2;
        }
        // What condition should we check here?
        return __________________ ? area > quad.getArea() : true;
    }

    @Override
    public void draw() {
        System.out.println("---");
        System.out.println("| |");
        System.out.println("---");
    }

    @Override
    public void color() {
        System.out.println("My color is blue!");
    }
}
```