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Homework 2

1. Instance variables are separate for each instance of the object. They are created and destroyed with each new object instance. Static members are a variable shared between every instance of the class. They are created and destroyed at the start and end of the program.
2. A final instance variable works just the same as an instance variable, but with the final keyword. Although each class instance initializes their own final variable, they will all be same between instances. This makes a final instance variable functionally the same as a static variable, as long as the static variable is not changed.
3. A superclass is a class that is inherited by a subclass. It shares all its protected, or greater visibility, variables and methods.
4.

```
import java.util.Scanner;
//A.16 Pg 449
public class Question4 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the radius of your circle: "
);
        double radius = input.nextDouble();

        System.out.printf("\nCircle's Diameter: %.2f", 2 * r
adius);
        System.out.printf("\nCircle's Circumference: %.2f",
Math.PI * 2 * radius);
        System.out.printf("\nCircle's Area: %.2f", Math.PI *
 Math.pow(radius, 2));

        input.close();
    }
}
```

5.

```
//B.11 Pg 471
public class GradeBook {
    private String courseName;
    private String instructor;

    public GradeBook(String name, String instructor) {
        this.courseName = name;
        this.instructor = instructor;
    }

    public void setInstructor(String instructor) {
        this.instructor = instructor;
    }

    public void setCourseName(String name) {
        this.courseName = name;
    }

    public String getInstructor() {
        return this.instructor;
    }

    public String getCourseName() {
        return this.courseName;
    }

    public void displayMessage() {
        System.out.printf( "Welcome to the grade book for: %s!\
n" +
            "This course is presented by: %s!",
            getCourseName(), getInstructor() );
    }
}
```