

- 3) a) In **Grades07B** change the line **private int gradeAverage, finalExam;** back to **public int gradeAverage, finalExam;**
- b) Run **AP1ch07lab02Testb.java** (there should be no errors)
- c) In **AP1ch07lab02Testb** add as the last line of code the line **System.out.println(Grades07B.gradeAverage);**
- d) Run **AP1ch07lab02Testb.java** and write what happens \_\_\_\_\_
- \_\_\_\_\_
- e) In **AP1ch07lab02Testb** delete the last line of code **System.out.println(Grades07B.gradeAverage);**
- f) Run **AP1ch07lab02Testb.java** (there should be no errors)
- g) In **Grades07B** change the line **public static final int curve = 5;** to **public final int curve = 5;**
- h) Run **AP1ch07lab02Testb.java** and write what happens \_\_\_\_\_
- \_\_\_\_\_

**C) Calling One Constructor from Another (7.4 pp. 309-310)**

- 1) a) Open **Grades07C.java\***
- b) Open and Run **AP1ch07lab02Testc.java**
- c) Is the output the same as in A) on page 1? (yes/no) \_\_\_\_\_
- d) Look at the default constructor code in **Grades07A** and then look at the default constructor code in **Grades07C**. Are the codes the same? (yes/no) \_\_\_\_\_
- e) Look at the code in **Grades07C** to answer the following
  - (1) In the **getGrade( )** method the **this.** represents what? \_\_\_\_\_
  - (2) In the **Grades07C( )** constructor block the line **this(100,100)** represents what? \_\_\_\_\_
- \_\_\_\_\_
- f) In the **Grades07C( )** constructor block switch the order of the lines **this(100, 100);** and **System.out.println ("\nUsing default settings for this student");**
- d) Run **AP1ch07lab02Testc.java** and write what happens \_\_\_\_\_
- \_\_\_\_\_

**Summary:**

- 1) Variables declared in a class as *static* variables are also called class variables and there is only one copy of its value in the memory not one for each object like instance variables. As long as they are declared as **public static** then they can be accessed from outside the class by associating the class name using a dot operator to the static variable.
- 2) A variable declared in a block of code can only be used in that block of code and a local variable takes precedence over a variable declared outside the block.
- 3) Making instance variables **public** allows the object to access them from outside the class but this is a very bad (side effects) programming idea. Instance variables should be **private** and accessed only in the methods associated with the class where the instance variables are declared.
- 4) You can make the default constructor call another constructor using **this** if the **this** line is the first line in the default constructor.

**Turn in this sheet to be graded!**

- 3) Scope of Class Members (7.8.2 p.306)
    - a) In **Grades07A** in the **getGrade( )** method delete the line **int curve = 2;** and change the statement **public static final int curve = 5;** to **private static final int curve = 5;**
    - b) Run **AP1ch07lab02Testa.java** and write what happens \_\_\_\_\_
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B) Call by Value and Call by Reference (7.1 pp. 290-292)

- 1) a) Open **Grades07B.java\***
  - b) Open and Run **AP1ch07lab02Testb.java**
  - c) Complete the output:
    - Grade before the final: \_\_\_\_\_
    - Final Exam: \_\_\_\_\_
    - Student 1's grade info:  
91.0 is the final average  
5% is curve
  
    - Using default settings for this student
    - Grade before the final: \_\_\_\_\_
    - Final Exam: \_\_\_\_\_
    - Student 2's grade info:  
105.0 is the final average  
5% is the curve
  - d) Are the values of student 1 and student 2 the same? (yes/no) \_\_\_\_\_
  - e) Is the **System.out.println** statement that outputs the *Grade before the final* and the *Final Exam* found in the **main( )** method or in the **getGrade( )** method? \_\_\_\_\_
  - f) Look at the code in **Grades07B** to answer the following
    - (1) Are the instance variables **private** or **public**? \_\_\_\_\_
- 2) a) In **Grades07B** change the line **public int gradeAverage, finalExam;** to **private int gradeAverage, finalExam;**
  - b) Run **AP1ch07lab02Testb.java** and write what happens \_\_\_\_\_
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- c) Answer the following:
  - (1) Can an object access its associated instance variables if they are declared as private? (yes/no) \_\_\_\_\_
  - (2) Can an object access its associated instance variables if they are declared as public? (yes/no) \_\_\_\_\_

**continued**

I. A) Static Fields (7.7 pp. 299-302)

1) a) Open **Grades07A.java**\*

b) Open and Run **AP1ch07lab02Testa.java**

c) Complete the output: Student \_\_\_\_\_ 's grade info:  
Grade before the final: 90  
Final Exam: 70  
91.0 is the final average  
\_\_\_\_\_ % is curve

Using default settings for this student

Student \_\_\_\_\_ 's grade info:  
Grade before the final: \_\_\_\_\_  
Final Exam: \_\_\_\_\_  
105.0 is the final average  
\_\_\_\_\_ % is the curve

d) Are the grades for student 1 and student 2 the same? (yes/no) \_\_\_\_\_

e) Are the curves for student 1 and student 2 the same? (yes/no) \_\_\_\_\_

f) Is the **System.out.println** statement that outputs the *Grade before the final* and the *Final Exam* found in the **main( )** method or in the **getGrade( )** method? \_\_\_\_\_

g) Look at the code in **Grades07A** to answer the following

(1) What are the 2 static variables \_\_\_\_\_

(2) Are these two variables declared inside of a constructor's block of code? (yes/no) \_\_\_\_\_

(3) Are these two variables declared inside of a method's block of code? (yes/no) \_\_\_\_\_

(4) What is the name of the method that outputs the student's number? \_\_\_\_\_

(5) Are the instance variables **private** or **public**? \_\_\_\_\_

2) Scope of Local Variables (7.8.1 pp.304-305)

a) In **Grades07A** in the **getGrade( )** method add the line **int curve = 2;** right after the line **double finalAverage;**

b) Run **AP1ch07lab02Testa.java**

c) Is the output the same as in #1) above? (yes/no) \_\_\_\_\_

d) In the **getGrade( )** method the final average is calculated using a curve and then in the **main( )** method the curve is output. Are the two curves the same value? \_\_\_\_\_

**OVER**