**Computer Science 2 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  
Unit 5 Test Review



1. Explain the difference between an object and a class.

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2. Explain the difference between an accessor and a modifier.

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3. Explain the difference between an instance field and a local variable.

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4. Explain the difference between

BankAccount b; and BankAccount b = new BankAccount(5000);

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5. Implement a class *Student*. A student has a name, number of quiz scores and a total quiz score. Supply an appropriate constructor and methods *getName()*, *addQuiz(int score) (this method should add score to the score total and increment the number of quiz scores),* *getTotalScore(),* and *getAverageScore()*. Use “**this**” with **shadowed parameters** in your constructors and modifiers and **to call the packed constructor** from the default constructor.

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6. Construct a new student named “Bob”. Bob has five quiz grades with a total of 35 points.

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7. Modify the Student that you instantiated in number 6 by adding an additional quiz grade of 8.

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8. Print the average of the test scores.

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9. Class *Calculator* has three static methods: int *add(int x, int y), int subtract(int x, int y) and int multiply(int x, int y).* Write the implementation for this class.

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10. Write code that would ask the user to enter two integers and then uses the methods from class Calculator to print out the sum, difference and product of these two numbers.

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11. Declare a constant to and set it equal to the golden ratio which is equal to approximately 1.6180.

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The implementation for Class **Engine** is below:

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| **public** **class** Engine{  // instance variables  **private** **int cylinders**;  **private** **int** horsePower;    // constructors  **public** Engine (){  this(0,0);  }  **public** Engine (**int** c, **int** h){  **cylinders** = c;  horsePower = h;  }  //modifiers  **public** **void** set**cylinders** (**int r**) {  row = r; | }  **public** **void** sethorsePower (**int** c) {  column = c;;  }  //accessors  **public** **int** get**cylinders** () {  **return** row;  }  **public** **int** gethorsePower () {  **return** column;  }  **public** **String** toString() {  **return** **cylinders** + “ “ +  horsePower;  }  } |

12. Class **Car** contains an **Engine** and a String named color. Write the implementation for this class. Your class should include two constructors, accessors and modifiers, and a toString method.

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13. Instantiate a new **Car** using the class’s default constructor.

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14. Instantiate a new **Car** using the class’s second constructor. Your **Car’s** cylinders should be set to 6, its horsePower should be set to 200 and its color should be set to red.

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15. **Modify** the **Car** that you instantiated in number three by setting the **Car**’s cylinders to 4.

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16. **Modify** the **Car** that you instantiated in number three by setting the **Car**’s color to ‘blue’.

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17. Print out the values of the **Car** that you instantiated in number three.

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