1.) How many bits are in a byte? ____

2.) Am I Hardware or software? Check the appropriate box

<table>
<thead>
<tr>
<th></th>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eclipse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mac OS X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft Word</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard drive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.) ______________________ is known as “the brain” of the computer.

4.) The two values of a bit are ____ and ____.

5.) Write the line of code that would print out the line:

   ```
   COMP110 is my favorite class
   ```

6.) Declare a variable of type float with the identifier, myFloat, and initialize the value to 4.6.
7.) Write the code to read in an integer from keyboard input. (two lines of code)

8.) In the code that follows, underline all Classes, circle all objects, draw boxes around all methods and draw a line through all arguments.

```java
public class MyProgram {
    public static void main(String[] args) {
        String myString = "This is a string";
        int len = myString.length();
        System.out.print("the length is " + len);
        String shortString = myString.substring(10);
    }
}
```

9.) What data value is stored in myDouble? (remember that 1 and 2 are integers)

```java
double myDouble = (1 / 2) * 5.0;
```

10.) What data value is stored in myDouble now?

```java
double myDouble = (1.0 / 2.0) * 5.0;
```

11.) Write down three legal variable names for Java.

12.) Write down three illegal variable names for Java.
13.) Write down the declaration for two variables called miles and time. Declare miles as type int and initialize it to zero. Declare time as type double and initialize it to 40.5.

14.) What is the output produced by the following lines of program code?

```java
char a, b;
a = 'b';
System.out.println(a);
b = 'c';
System.out.println(b);
a = b;
System.out.println(a);
```

15.) Suppose that mary is an object of class Person, and suppose that increaseAge is a method of class Person that uses one argument, an integer. Write the invocation of the method increaseAge for the object mary using the argument 5.

16.) 5 % 2 =

    12 % 4 =

    82 % 60 =

    24 % 14 =

17.) What is the value of myInt after each line of code is executed?

```java
    int myInt = 0;
    myInt++;
    myInt = myInt + 5;
    myInt -= 3;
    System.out.println("the value is: ", myInt);
```
18.) What kind of error would you get from the following line of code?

    byte b1 = 5

19.) The factorial (denoted ! in mathematics) of a number is the product of that number and all positive integers less than it. Examples:

3! = 3 * 2 * 1 = 6  
5! = 5 * 4 * 3 * 2 * 1 = 120

Write pseudocode that prompts the user for an integer and then outputs the factorial of that number.