COMP 110 – Chapter 1 & 2 Review

1. How many bits are in a byte? _____  What are the possible values of a bit? ________________

2. The ________________________________ is known as “the brain” of the computer.
   Is it hardware or software? ______________________________

3. Write the line of code that would print out the line:
   
   COMP 110 is my favorite class.

4. Write the lines of code that would declare 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.

5. Write the two lines of code needed to read an integer from the keyboard:

   What is the import statement that is needed at the top of the file for the above lines to work?

6. Given the line of code below, what data value is stored in myDouble? ________

   double myDouble = ( 1 / 2 ) * 5.0

7. Suppose the line were changed as follows, what data value is stored in myDouble instead? _______

   double myDouble = ( 1.0 / 2.0 ) * 5.0

8. Which of the following are illegal variable names? (circle them)

   myInt       3blindMice       $money!       __input
   total-cost  magicalFluffyBunnies  123         public
9. What is the output produced by the following lines of code?

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

10. 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 object mary using the argument 5.

11. 5 % 2 = ________  82 % 60 = ________
    12 % 4 = ________  24 % 14 = ________

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

```
myInt
int myInt = 0;
myInt++;
myInt = myInt + 5;
myInt -= 3;
System.out.println("the value is: " + myInt);
```

13. What kind of error would you get from the following line of code? How would you fix it?

   byte myByte = 5

14. What are the values of the variables n and m after executing the following code?

```
int n, m, temp;
n = 10;
m = 20;
temp = n;
n = m;
m = temp;
```
15. In the four lines of code that comprise the main method below, underline all **classes**, circle all **objects**, draw boxes around all **methods**, and draw a line through all **arguments**.

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

16. The factorial (denoted as ! in mathematics) of a number is the product of that number and all positive integers less than it. For example,

\[
3! = 3 \times 2 \times 1 = 6 \\
5! = 5 \times 4 \times 3 \times 2 \times 1 = 120
\]

Write the pseudocode (English or a mix of English and code is fine) that prompts the user for an integer and then outputs the factorial of that number.