Midterm 1 – Fall 2013 – Q&A

2.

Question 2. 10 pts

How many times does the code fragment below print the letter B?

```java
String s = "B";
for (int j = 0; j < 2; j++) {
    s = s + s + s;
    System.out.println(s);
}
```

Answer: 12. First time around 3, then 9

3.

Question 3. 10 pts

After the statement below executes, what variable is held in the variable n?

```java
int n = (21 % 11 / (16 % 13));
```

Answer: 10 / 3 = 3

4
```java
public class Magazine{
    private String name; // magazine name
    private int months; // months remaining on subscription
    private double cost; // cost of a 12 month subscription

    public Magazine(String n, int m, double c){
        name = n;
        months = m;
        this.cost = cost;
    }

    public String getName(){return name;}
    public int getMonths(){return months;}
    public double getCost(){return cost;}
    public void setMonths(int m){months = m;}
}
```

In the box below create a Magazine object called myMag, with these characteristics: the magazine is called "People", a 12 month subscription costs $15.97, and this particular subscription runs for another 24 months.

Magazine myMag = new Magazine("People",24, 15.97);

5.

In the box below add an additional method to the class called addYear. This method should take no arguments, and should add 12 months to the number of months remaining on the magazine subscription. For example, if sysmag is a magazine with 5 months left, then after applying the addYear method to sysmag, sysmag should have 17 = (12+5) months remaining.

public void addYear(){months = months + 12;}.  

6.

Write a for loop that prints the following column of numbers in the indicated order. Your code must use a for loop in an essential way. Note that all numbers that are multiples of 3 in the range between 40 and 31 are marked with a dollar sign.

```java
for(int j =40; j >= 31; j--)
if(j%3 ==0)System.out.println(j+"$");
else (System.out.println(j);
```

7.

```java
System.out.println((char)(B+3));
```

prints E. (as described in movie at end of 4.1 as well as in class)
This Infant class code addition is correct as written:

```java
public boolean isOlder(int age){
    if (this.age > age) return true; else return false;
}
```

9.

Write a complete one class program called MiddleRandom that reads an int value from the keyboard (which you may assume is positive) and places this value in an int variable called n. Then your program should generate n random numbers between 0.0 and 1.0. Finally, your program should report the decimal fraction number of the generated values that fall between 0.4 and 0.6.

import java.util.Scanner;
public class MiddleRandom{
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int ctr = 0;
        for(int j = 1; j <= n; j++){
            double r = Math.random();
            if ((r >= .4) && (r <= .6)) ctr++;
        }
        System.out.println((double)ctr/n);
    }
}
```