Homework: Review I

1.

```
/**
* Repeatedly asks the user for a positive integer until the user enters
* one. Returns the positive integer.
*
* @param in
* the input stream
* @param out
* the output stream
* @return a positive integer entered by the user
*/
private static int getPositiveInteger(SimpleReader in, SimpleWriter out) {
        boolean validAnswer = false;
        System.out.println("Enter a positive integer: ");
        String input = in.nextLine();
        int n = 69;
        // checks to make sure input is valid
        while (!validAnswer) {
                // checks to make sure value is integer type
                if (FormatChecker.canParseInt(input)) {
                n = Integer.parseInt(input);
                // checks for positive integer
                if (n == 0) {
                        System.out.println("Zero doesn't count as positive");
                        System.out.println("Enter a positive integer: ");
                        input = in.nextLine();
                } else if (n < 0) {
                        System.out.println("I said a POSITIVE integer: ");
                        input = in.nextLine();
                } else {
                        validAnswer = true;
                }
        // gives user some sass for not following directions
        } else {
                System.out.println("That's not even a number");
                System.out.println("Enter a positive INTEGER: ");
                input = in.nextLine();
                }

        }
        return n;
```

2. a.

	n = 1 i = 2
While (i < 5)	
n = n + i;	n = 3, 6, 10 i = 2, 3, 4
i = i + 1;	n = 3, 6, 10 i = 3, 4, 5
	n = 10 i = 5

b.

	i = 2 n = .5
While (i <= 5)	
n = n + 1.0 / i;	i = 2, 3, 4, 5 n = 1.0, 1.33, 1.58, 1.78
i = i + 1;	i = 3, 4, 5, 6 n = 1.0, 1.33, 1.58, 1.78
	i = 6 n = 1.78

c.

	x = 1.0 y = 1.0
While (x < 1.8)	
y = y / 2.0;	x = 1.0, 1.5, 1.75 y = 0.5, 0.25, 0.125
x = x + y	x = 1.5, 1.75, 1.875 y = 0.5, 0.25, 0.125
	x = 1.875 y = 0.125

d.

	x = 3 y = 4
While (y > 0)	
x = x + 1;	x = 4, 5, 6, 7 y = 4, 3, 2, 1
y = y – 1;	x = 4, 5, 6, 7 y = 3, 2, 1, 0
	x = 7 y = 0

3.
a.

```
int total = 0, i = 2;
while (i <= 100) {
        if (i % 2 == 0) {
                total += i;
        }
        i++;
}
```

b.

```
int total = 0, i = 1;
while (i <= 100) {
        total += Math.sqrt(i);
        i++;
}
```

c.

```
int total = 0, i = 0;
while (i <= 20) {
        total += Math.pow(2, i);
        i++;
}
```

d.

```
int total = 0, i = a;
while (i <= b) {
        if (i % 2 == 1) {
                total += i;
        }
        i++;
}
```

e.

```
// I can interpret an input however I want. This code will work.
String input = in.nextLine();
int total = 0, i = 0;

while (i < input.length()) {
        if (i % 2 == 1) {
                total += Integer.parseInt(input.at(input.length() – i));
        }
        i++;
}
```

f.

```
String input = in.nextLine();
int total = 0, i = 1;

while (i < input.length()) {
        if (i % 2 == 1) {
                total += Integer.parseInt(input.at(i – 1));
        }
        i++;
}
```

4.

a. public static int greatestNum(int x, int y) {…}

b. public static int lowestNum(int x, int y, int z) {…}

c. public static boolean isPrime(int x) {…}

d. public static boolean isSubStr(String bigString, String smallString) {…}

e. public static double calcBalance(double initBalance, double interestRate, int years) {…}

f. public static void printBalance(double initBalance, double interestRate, int years) {…}

g. public static void printCalendar(String month, int year) {…}

h. public static void printWeekday(String day, String month, int year) {…}

i. public static int randomInt(int n) {…}

5. Because temp is assigned to the same memory address as A instead of copying the data at that address

6.

```
public static boolean allTheSame(int x, int y, int z) {
        return (x == y && y == z);
}
public static boolean allDifferent(int x, int y, int z) {
        return (x != y && y != z && x != z);
}
public static boolean sorted(int x, int y, int z) {
        return (x <= y && y <= z);
}

// I hope this works lol I wrote this all in word
public static void main(String[] args) {
        int x = 1, y = 2, z = 3;
        if (allTheSame(x, y, z)) {
                System.out.println(“All the same”);
```

```
        }
        if(allDifferent(x, y, z)) {
                System.out.println("All different");
        }
        if (sorted(x, y, z)) {
                System.out.println("Sorted");
        }
}
```