**CS2360 Java Programming**

**Lab 3**

**Warm-up Exercises**

1. What is wrong with each of the following statements:
   1. char firstLetter = p;
   2. int 2way = 89;
   3. String name = Ricky;
   4. int student score = 89;
   5. Double $class = 4.5;
   6. int \_parents = 20.5;
   7. string name = "Greg";
2. Assume that **int a = 10** and **double d = 10.0**, and that each expression is independent. What are the results of the following expressions?
   1. a = 25 / 4;
   2. a = 15 % 9 + 2 \* 5 – 3;
   3. a = 17 + 25 % 3 \* (34 \* 4 % 3);
3. Write down what the following main method prints to the screen? (Hint: Keep track of the values of all the variables for each line)

public class UsingOperators {

public static void main(String[] args) { int x = 5;

int y = 3;

int z = x + x\*y - y;

System.out.println("The value of z is " + z);

int w = (x + x)\*y - y; System.out.println("The value of w is " + w);

z = w + 3;

System.out.println("The value of z is now " + z);

z -= 2;

System.out.println("The value of z is " + z);

z++;

System.out.println("The value of z is " + z);

--z;

System.out.println("The value of z is " + z);

}

}

**Programming Exercises**

***Q1 Calculating energy***

Write a program that calculates the energy needed to heat water from an initial temperature to a final temperature. Your program should prompt the user to enter the amount of water in kilograms and the initial and final temperatures of the water. The formula to compute energy is:

*Q* = *M* \* (final temperature – initial temperature) \* 4184

where *M* is the weight of water in kilograms, temperatures are in degrees Celsius, and energy *Q* is measured in joules.

Here is the sample run:

Enter the amount of water in kilograms: 55.5

Enter the initial temperature: 3.5

Enter the final temperature: 10.5

The energy needed is 1625484.0

***Q2 Distance of two points***

Write a program that prompts the user to enter two points (x1, y1) and (x2, y2) and displays their distances. The formula for computing the distance is

Note that you can use *Math.pow(a, 0.5)* to compute .

Here is the sample run:

Enter x1 and y1: 1.5 -3.4

Enter x2 and y2: 4 5

The distance of the two points is 8.764131445842194

***Q3* Summing the digits in an integer**

Write a program that reads an integer between 0 and 1000 and adds all the digits in the integer. For example, if an integer is 932, the sum of all its digits is 14.