***Week 1 Tue,Wed and Thurs Lab Assignment***

1. **Write a Java program to print the result of the following operations. Use parentheses where needed and make sure your results are correct.**

Display your output two ways, first, create variables to hold the expressions and then display the variables (that’s the first output shown below) and secondly, using print method, display the expression and its result together (that is the second output shown below)

Feel free to add more expressions to your program, if you wish.

**Test Data:**

1. -5 + 8 \* 6
2. (55+9) % 9
3. 20 + -3\*5 / 8
4. 5 + 15 / 3 \* 2 - 8 % 3

**Expected Output 1:**43   
1   
19   
13

**Expected Output 2:**-5 + 8 \* 6 = 43

(55 + 9) % 9 = 1

20 + (-3 \* 5 / 8) = 19

1. + 15 / 3 \* 2 - 8 % 3 = 13
2. **Write a Java program to find the value of following expression.**

a) 101 + 0) / 3  
b) 3.0e-6 \* 10000000.1  
c) true && true  
d) false && true  
e) (false && false) || (true && true)  
f) (false || false) && (true && true)

**Expected Output:**

(101 + 0) / 3) 33  
(3.0e-6 \* 10000000.1) 30.0000003  
(true && true) true  
(false && true) false  
((false && false) || (true && true)) true  
(false || false) && (true && true) false

1. **Type Casting Operator in use**:

Write a Java program that uses a type casting operator to convert various numeric type data to different datatype.

First, the expression is evaluated. Its value is then treated as a value of the type specified by dataTypeName.

**Evaluate: Expected output:**

7.9 To 7 Integer Type

3,3 To 3 Integer Type

25 To 25.0 Double Type

(5 + 3) To 8.0 Double Type

(15)/2 To 7.5 Double Type

(15/2) To 7.0 Double Type

(7.8 + (15)/2) To 15 Integer Type

(7.8 + (15/2)) To 14 Integer Type

**Consider another series of examples, x = 15, y = 23, z = 3.75**

**Evaluate: Expected output:**

(7.9 + 6.7) To 14 Integer Type

7.9 + 6.7 To 13 Integer Type

(y/x) + z To 4.75 Double Type

(y)/x + z To 5.283333333333333 Double Type

1. Write a java program that will evaluate expressions using relational operators. You a Scanner class to scan in two integers from the user or declare two variables with integer values to compare using relational operators.

**Test data:**

Get the Values from either the user (scan in two integers)

**OR**

Declare two variables of type integer.

int x = 50;

int y = 10;

**Expressions to be used and display the results (relational expressions will always evaluate to either True or False (they are Boolean expressions)):**

== Equals operator compare x and y using ==

!= Not Equals operator compare x and y using !=

< Less Then operator compare x and y using <

> Greater Then operator compare x and y using >

<= Less Then Equal To operator compare x and y using <=

>= Great Then Equal To operator compare x and y using >=

**These are Boolean expressions so the result should be TRUE or FALSE – Display there result, no need to create another variable to store (true/false) value, evaluate expression right inside of the printf().**