Pencil And Paper Assignment For Lesson 2

1. Consider the following if…then logic:

if(age > 65) socialSecurityStatus = "eligible"; else socialSecurityStatus = "ineligible";

Rewrite this (pseudo) code using the Java ternary operator.

**boolean** isEligible **=** age > 65 ? "eligible" : "ineligible";

1. Suppose a String s is initialized by

String s = "a friendly face";

* 1. Compute the value of the expression

s.charAt(2); **R:** f

* 1. What is the value of

s.length()? **R:** 15

* 1. What is the value of

s.substring(2,9)? **R:** friendl

s.substring(4)? **R:** iendly face

1. Write a Java expression that computes each of the following:
   1. Given the radius r of a circle, compute the area of the circle, and store it in a variable A.
      * **R:** float A = Math.PI \* radius\*radius;
   2. Given the length len and width wid of a rectangle, compute the length of the diagonal of the rectangle, and store it in a variable diag.
      * **R:** float diag = Math.sqrt(len\*len + wid\*wid);

1. Compute the following (without writing any Java code) and indicate the type of your answer. (Example: 4 \* 3 + 2 equals 14, of type int.)
   1. 3 \* 5 / 9 % 2 = **1**
      * 15 / 9 % 2
      * 1 % 2 = **1**
   2. 4 ^ 3 & 5 =  **5**
      * 4 =100
      * 3= 011
      * 5=101
      * 3 & 5 = 011 & 101 = 001
      * 4 ^ 001 = 100 ^ 001 = 101
      * R: 101 -> 5
   3. 13 >> 2 << 2 ^ 4 = **8**
      * 13 >> 2 = 13 / (2^2) = 13/4 = **3**
      * **3** << 2 = 3 \* (2^2) = 3 \* 4 = **12**
      * **12** ^ 4
      * 12 = 1100
      * 4 = 0100
      * = 1000 = **8**
   4. 32 | 16/3 >> 2 & 5. = 33
      * 16/3 = 5
      * 5 >> 2 = 5 / (2^2) = 5/4 = 1
      * 1 & 5 = 0001 & 0101 = 0001 = 1
      * 32 | 1 = 0010 0000 | 0000 0001
      * 33
2. You are reviewing some old Java programs in your company's IT department and you read the following assignment statement in some abandoned code:

int a = (b = 5);

Is the statement legal (i.e. would it compile)? If so, what value is assigned to the variable a? Explain.

**R:** Suppose that variable b is declared, int a will be equal to 5 which it means that it is a legal declaration but no so common.