Tutorial 3

1. What are the outputs for the following expressions?
   - i.   `'A' < 'B'`
   - ii. `'a' == 'A'`
   - iii. `'a' < 'B'`

2. If **int1 = 12**, **int2 = 18**, and **int3 = 21**, what is the result of each of the following Boolean expressions?
   - (a)   `int1 < int2  && int2 < int3`
   - (b)   `int1 < int3 || int3 < int2`
   - (c)   `int1 <= int2 – 6`
   - (d)   `int2 <= int1 + 5 || int3 >= int2 +5`
   - (e)   `!(int1 <30)`
   - (f)   `!(int2 == int1 && int3 == int1)`
   - (g)   `!(int1 > 25) && !(int2 <17)`

3. What is the result for each of the following expression?
   - (a)   `1 + 2 * 4/2`
   - (b)   `(1 + 2) * 4/2`
   - (c)   `9 % 2 + 1`
   - (d)   `(1 + (10 – (2 + 1)))`
   - (e)   `557%8 * 3 – 9`
   - (f)   `(234/5) * 4 – 7%3`

4. Give the value of a, b and c after each statement is executed when we declared variables as below:
   ```
   int a, b = 4, c = 0;
   ```

   - (a)   `a = ++b – ++c;`
   - (b)   `a = b-- + --c;`
   - (c)   `a = b++ + ++c;`
   - (d)   `b = a = c--;`

5. Given the following definitions, which of the following statements are valid assignments?
   ```
   #define NUM 20
   int a, b = 8;
   ```

   - (a)   a = 6;
   - (b)   b = 3;
   - (c)   a = b = 24;
   - (d)   a = 12 = b;
   - (e)   b = b + 3;
   - (f)   b = 1 + NUM;
   - (g)   9 = b;
   - (h)   b % = 2;
   - (i)   a + b = 36;
   - (j)   b * = 10 – b;

6. If initially x = 3, y = 4, z = 5, what is the value of each of the following expressions?
    (a)   x + 2 / 3 + y
    (b)   2 − (x + z) % 2 + 4
    (c)   y ++ + z-- + x++
    (d)   x++ - ++y
    (e)   ++x - --z
    (f)   --x + ++y − z--

7. If x = -4, y = 5 and z = 0, determine whether the following expressions is TRUE or FALSE.
    (a)   ! (2 + 7 * y >= z − 4)
    (b)   x + 2 || z < (y − 3) && y
    (c)   3 * x / 4 % y && !z
    (d)   y − 2 * z < x * 2 / 3

8. Correct the error(s) in each of the code segments below.
    (a)   ```
             if (1 < x < 5)
                 cout << x;
             ```

    (b)      ```
             int x;
             cin >> x;
             if (x%2 = 0)
                 cout << "You entered an even number.";
             ```

    (c)   ```
             string s;
             getline(cin,s);
             if (s < 10)
                 cout << "Your phrase is less than 10 letters long.";
             ```