Tutorial #4: Boolean Expressions & Selection Instructions

Question 1:

What output will be produced by the following code?

```
public class SelectionStatements
{
    public static void main(String[] args)
    {
       int number = 24;
       if (number % 2 == 0)
          System.out.print("The condition evaluated to true!");
       else
          System.out.print("The condition evaluated to false!");
    }
}
```

Question 2:

What would be the output of the code in Question 1 be if number was originally initialized to 25?

Question 3:

Write a series of `if` statement statements that evaluates a person's weight on the following criteria:

- A weight less than 116 pounds, output: Eat 5 banana splits!
- A weight between 116 pounds and 130 pounds, output: Eat a banana split!
- A weight between 131 pounds and 200 pounds, output: Perfect!
- A weight greater than 200 pounds, output: Plenty of banana splits have been consumed!

Question 4:

Write a series of `if` statement statements to compute the amount of shipping due on an online sale. If the cost of the purchase is less than or equal to $20, the shipping cost is $5.99. If the cost of the purchase is over $20 and at most $65, the shipping cost is $10.99. If the cost of the purchase is over $65, the shipping cost is $15.99.

Question 5:

What is the value of these expressions?

```
1+2 > 4-2 && 12 < 23
1+2 > 4-2 || 12 < 23
1+2 > 4-2 && 12 > 23
1+2 > 4-2 || 12 > 23
```

Question 6:

What is the output of these code fragments?

```
 int sum = 14;
if (sum < 20)
  System.out.print("Under ");
else
  System.out.print("Over ");
System.out.println("the limit.");

//-----------------------------------
      int sum = 14;
      if (sum < 20)
        System.out.print("Under ");
      else
      {
        System.out.print("Over ");
        System.out.println("the limit.");
      }
//-------------------------------------------

      int sum = 94;
      if (sum < 20)
      {
```

```
  System.out.print("Under ");
  System.out.println("the limit.");
}
else
{
  System.out.print("Over ");
  System.out.println("the limit.");
}
```

Question 7:

Assume the following declarations:

```
int x = 1;
boolean isFree = false;
char initial = 'L';
char code = 'Y';
String english = "hi";

String italian = "ciao";
boolean q = (5 == 6);
```

For each of the following expressions, indicate if it creates a syntax error or not. If there is no error, indicate the value of the expression.

```
(true && (5 > 6))

((x != 0) || (x % 2 == 1))

(isFree | (x < 0))

initial == code

!!q

(0 <= x <= 10)

(english > italian)

initial = code

"italian".equals(italian)
```

Question 8:

What is the output of the following?

```
int x = -555;
boolean isNegative = (x < 0);
if (isNegative)
{
   x = 100;
   if (isNegative)
        System.out.println("no");
   else
        System.out.println("yes");
}
else
   System.out.println("maybe");
```