CS 1622 – Homework 3

Due: Thursday, April 17, 2014 at the start of class

Please submit a typewritten document. I'd prefer you draw your graphs on the computer, but if this is a challenge, you may hand draw them neatly on the paper by hand.

1.) Identify the basic blocks in the following sequence of IR code and construct the Control Flow Graph:

```
      x := 0
L1:   a := x * 2
      b := a < 5
      iftrue b goto L2
      x := x + 1
L2:   c := a + x
      b := x < 10
      iftrue b goto L1
      return c
```

2.) Perform liveness analysis on the variables in the above code statement by statement. Show each iteration of the algorithm in terms of live-in and live-out.

3.) Construct the interference graph and perform register allocation using K=3 registers. Show the order that simplify removes the nodes from the graph and then the resulting colors as it is rebuilt.