Complete the following problems. You may submit them on paper (under my door if I’m not in my office) or via email (as an attachment).

1. (8 points)
   (a) Draw the binary search tree that results from the following sequence of operations, performed on an initially-empty tree. Do not perform any rebalancing.
      - insert 9
      - insert 4
      - insert 2
      - insert 15
      - insert 7
      - insert 5
      - insert 10
      - insert 8
      - insert 3
   (b) Draw the binary search tree that results if 10 is removed from the tree created in part (a).
   (c) Draw the binary search tree that results if 4 is removed from the tree created in part (a). (NOT (b)!) 

   Be sure to include all three drawings.

2. (8 points) Actual LEDs work in the opposite way to what we’ve been assuming in class; they are actually lit when the controlling wire is off. With this change, design a circuit to control the bottom left segment of a 7-segment display. (i.e., it should be 0 when the bottom left segment should be lit and vice versa.) Follow the procedure we used in class and submit both your truth table and the circuit. You may draw the circuit by hand or use Logisim. Either way, be sure to label the bits, using the label x for the 4s bit, y for the 2s bit, and z for the 1s bit.