CS 180: Data Structures, Fall 2011
Homework 3

Due by the start of class on Wednesday, Nov. 30

1. (a) Draw the binary search tree that results after the following elements are inserted into an initially empty BST **in this order**: 13, 67, 5, 79, 55, 23, 42, 89, 60, 1, 7, 9
   (b) Now show what the tree looks like after the command `remove`(79).
   (c) Now show what the tree looks like after the command `remove`(5).
   (d) Now show what the tree looks like after the command `remove`(13).

2. Your classmate claims that the order in which a set of elements is inserted into an AVL tree does not matter - the same tree will result every time. Given a small example that proves your classmate is wrong.

3. (a) Draw the AVL tree that results after the following elements are inserted into an initially empty tree **in this order**: 13, 67, 79, 55, 5, 23, 89, 42
   Hint: Be sure to indicate when the tree is out of balance, and what ”rotations” happen which cause structural changes in the tree!
   (b) Now show what the tree looks like after the command `remove`(5).