## Computer Science I - Summer 2011 Recitation \#7: Binary Search Trees

1. Draw the binary search tree that results from inserting the following values into an initially empty binary search tree in the following order: $50,27,16,88,34,65,52,77,93$, 4, 12, 29, 44, 92
2. What are the outputs of a pre-order and post-order traversal of the final binary search tree drawn in question 1 ?

Pre-order: $\qquad$ , $\qquad$ , __ , $\qquad$
$\qquad$
$\qquad$
$\qquad$ , __, $\qquad$
$\qquad$ , __, $\qquad$

Post-order: $\qquad$ , $\qquad$ , _ , , _ , __ , $\qquad$ , _ , , $\qquad$ , __, , , , $\qquad$ ,
3. If a search was conducted for the value 37 in the final binary search tree from question \#1, which nodes would get visited? (List them in the order they get visited.)
4. Write a function which returns the smallest value stored in a non-empty binary search tree. The prototype is below:
int minVal(struct treenode* root) \{
5. Write a function which returns the number of leaf nodes in a binary search tree. The prototype is below:
int numLeafNodes(struct treenode* root) \{
\}
6. What does the following function do?
struct treenode* q6(struct treenode* root, int x) \{
if (root == NULL) return NULL;
if (root->data > x) \{
struct treenode* tmp = q6(root->left, $x$ ); if (tmp == NULL) return root; else return tmp;
\}
else return q6(root->right, x);
\}

