Section Solutions #5

Problem 1:

a) The height of the tree is 4 (just one node would be height 1). Ross is at depth 2, and the descendants of Morganstern are Hathaway, Ross, and Weaver.

b)

pre-order	**in-order**	**post-order**
Greene	Benton	Benton
Carter	Carter	Carter
Benton	Greene	Hathaway
Morganstern	Hathaway	Weaver
Hathaway	Morganstern	Ross
Ross	Ross	Morganstern
Weaver	Weaver	Greene

c) 'Del Amico' would be the right child of Carter.

d) Greene was the first node inserted (since it's the root).

e) It's unlikely.

Problem 2: Binary Trees

```
int TreeHeight(treeT t)
{
    if (t == NULL) {
       return (0);
    } else {
      return (Max(TreeHeight(t->left),TreeHeight(t->right)+ 1);
    }
}

bool IsBalanced(treeT t)
{
    if (t == NULL) return (TRUE);
    return (abs(TreeHeight(t->left)-TreeHeight(t->right)) <= 1
            && IsBalanced(t->left) && IsBalanced(t->right));
}

static int Max(int x, int y)
{
    return ((x > y) ? x : y);
}
```