Homework Set #7

1. Chapter 8: Exercise 8.4-2, page 204. (20 points)

2. Chapter 9: Problem 9-1, page 224. (30 points)

3. Chapter 10: problem 10-1, page 249. (30 points)

4. Chapter 11: Consider inserting keys 3,4,2,5,1 in the order given into a hash table of length m = 5 using hash function $h(k) = k^2 \bmod m$. (20 points)

a) Using $h(k)$ as the primary hash function, illustrate the result of inserting these keys using open addressing with linear probing.

b) Using $h(k)$ as the primary hash function, illustrate the result of inserting these keys using open addressing with quadratic probing, where c_1=1 and c_2=2.

c) Using $h(k)$ as the hash function, illustrate the result of inserting these keys using chaining. Compute the load factor α for the hash table resulting from the insertions.

d) What different values can the hash function $h(k) = k^2 \bmod m$ produce when m = 11? Carefully justify your answer in detail.