Problem set 6

(1) Do exercises 4.3-1, 4.3-2 (use substitution method)

(2) Do exercise 9.3-1

(3) Answer the following questions:

a. What is the worst case recursion equation and resulting run time for the Randomized-Select algorithm? Think about how the array is partitioned in the worst case and explain. What is the best case recursion equation and resulting run time for the Randomized-Select algorithm? Think about how the array is partitioned in the best case and explain. Write down the recursive equations and solve for the run time.

b. What is the average time performance of Randomized-Select? There is no need to develop again the solution for the average case; just note what the answer is.

c. What is the worst case running time of the Select algorithm (in which the array was divided into groups of 5 elements and the pivot was found via the median of medians)? Why is this different from the worst case running time of the Randomized-Select algorithm? Think about how the array is partitioned and explain.