

## CSci 1302 Assignment 9

Due Mon., April 17

**Problem 1 (4 points).** Exercises 31, 38 p. 556.

**Problem 2 (6 points).** Exercises 3, 5 p. 540.

**Problem 3 (4 points).** Exercises 10, 12 p. 541.

**Problem 4 (10 points).** Some implementations of the quick sort algorithm choose a pivot the following way: take the first three elements in the array, compare them to each other, and take pivot to be the middle one.

1. How many comparisons does this add to a pass of quick sort (a pass here means separating an array into two sub-arrays and the pivot)? Please explain your answer.
2. Does it change the worst-case efficiency of the algorithm? Please explain, use the result from question 1.
3. What is the purpose of this procedure? Please give a detailed answer.