HW Assignment 3 (Due date: October 12, Monday)

1. [Decision Trees, 5 points] Exercise 8.1-1, page 167.
2. [Counting Sort, 10 points] Exercise 8.2-4, page 170.
3. [Radix Sort, 10 points] Exercise 8.3-4, page 173.
4. [Selection, 15 points] Exercise 9.3-5, page 192.
5. [Selection, 15 points] Exercise 9.3-7, page 193.
6. [Selection, 15 points] Problem 9.3-8, page 193.
7. [Matrix Multiplication, 10 points] Exercise 28.2-5, page 741.
8. (*) [Lower Bounds, 10 points] Prove that the worst-case number of comparisons needed to find the median of a set of $n = 2k + 1$ numbers is at least:
$$\left\lceil \lg \left[(k+1) \binom{2k+1}{k} \right] \right\rceil$$