Assignment 4

Grades: each assignment is 5% in the final score and there is a 1% bonus in each assignment for bonus problems. We use the following scale for the simplicity of grading: the total score is 50 (additional 10 for bonus problems) for each assignment.

Problem 1 [Full Score: 10]. Please draw red-black trees after each operation for the following exercises.

(1) 5 Exercise 13.3-2 (on page 322). Draw 6 red-black trees here.

(2) 5 Exercise 13.4-3 (on page 330). Draw 6 red-black trees here. The last one is an empty tree.

Problem 2 [Full Score: 10]. Please solve Exercise 13.1-1 (on page 311). You only draw 3 red-black trees with corresponding black-heights 2, 3, and 4 respectively.

Problem 3 [Full Score: 20]. Please provide a brief answer and justification for the following problems.


(2) [10 ] Exercise 13.1-6 (on page 312).


Problem 4 [Full Score: 10]. Please solve Exercise 13.4-7 (on page 330). Justify your answer by an argument when they are the same or an example when they are different.