

## Analysis of Algorithms I: Problem Assignment 1

Due on Gradescope at 11:59pm on Monday, February 7 2022.

### Instructions

- Problems 1-5 are each worth 10 points.
- Submit your solutions in pdf format. Late submissions will **not** be accepted.
- You can discuss with TAs or other students but you must acknowledge them at the beginning of each problem and your solutions must be written in your own words.

### Problems

1. Exercise 3.1-1 (Page 52) and 3-1 (a) and (d) (Page 61) of the textbook. For Exercise 3.1-1, you can assume both functions to take nonnegative values.
2. Problem 2-3 (Page 41). Skip (b).
3. (Wait for class on Jan 26) Exercise 2.3-7 (Page 39).
4. (Wait for class on Jan 26) Exercise 4.4-4 (page 93). Use the substitution method to prove your upper bound.
5. (Wait for class on Jan 26) Problem 4-3 (a), (c) and (j) (Page 108): Use Master theorem on (a) and (c). For (j) it suffices to draw its recursion tree and conclude with your best guess.