

CS 758/858 Homework 2: More Sorting and Complexity

Tue Sep 1 2026

These are some suggestions to help you prepare for quiz 2.

1. Study radix sort, quicksort, and insertion sort.
2. Show the intermediate steps (after each counting sort) in a radix sort of $\{313, 517, 619, 500, 591, 543\}$.
3. Why would anyone ever use insertion sort?
4. Study big- O notation.
5. Prove the time complexity of radix sort.
6. Exercises 2.2–2 and 3.1–2 in CLRS
7. Exercise 7.1–3 in CLRS
8. Why is quicksort's time complexity $O(n \lg n)$ when the pivot is chosen perfectly?
9. Exercise 3.2–1 in CLRS
10. Exercise 3.2–2 in CLRS
11. Prove $n^2/2 - 3n = \Theta(n^2)$.
12. Prove $10n^2 + 5n = \Theta(n^2)$.
13. (858 only) Problem 3–4, parts a and b
14. (858 only) Problem 3–5, parts b and c