

Homework 8 – due Thursday, Oct. 26

Problem 1 Exercise 2.1-1, page 31 of CLR.

Problem 2 Exercise 2.1-4, page 31 of CLR.

Problem 3 Show that 3^n is not $O(2^n)$, but $\log 3^n$ is $O(\log 2^n)$.

Problem 4 Evaluate the sum $\sum_{k=0}^n (k \cdot 2^k)$.

Problem 5 Exercise 3.2-1, page 52 of CLR. (Read Section 3.2 as needed.)

Problem 6 Use the substitution method to show that the solution to the recurrence

$$T(n) = T(n - 1) + n$$

is $T(n) = O(n^2)$.

Problem 7 Use the iteration method to show that the solution to the recurrence

$$T(n) = T(n - 1) + n$$

is $T(n) = \Theta(n^2)$.

Problem 8 Use the Master theorem to solve Problem 4-1 (a-f).