

Homework Assignment 8
CS 2233
Section 001 and Section 002
Due: Friday, April 19

Problem 1. [10 points]

Complete all participation activities in zyBook sections 8.13-8.15, 8.17

Problem 2. [10 points] Solve the following recurrence relations.

a. [5 points]

$$\begin{aligned}a_0 &= 1 \\a_1 &= 1 \\a_n &= 2a_{n-1} + 15a_{n-2}\end{aligned}$$

b. [5 points]

$$\begin{aligned}f_0 &= 1 \\f_1 &= 4 \\f_n &= 2f_{n-1} - f_{n-2}\end{aligned}$$

Problem 3. [15 points] Use the Master Theorem to give big- Θ estimates of the following recurrence relations.

a. [5 points] $T(1) = 1; T(n) = 4T(n/2) + n^2$

b. [5 points] $T(1) = 1; T(n) = 9T(n/3) + n$

c. [5 points] $T(1) = 1; T(n) = 6T(n/2) + n^3$