

MATH 302 Discrete Mathematics
Assignment 8. **Due on Wednesday, April 4, 2012.**
6th edition of the textbook

Read: Sections 7.2, 7.3, 5.1,

Definition: Write down the definitions for the following terms. [5 points]

linear homogeneous recurrence relation of degree k with constant coefficients

linear nonhomogeneous recurrence relation with constant coefficients

divide-and-conquer recurrence relation

Master Theorem (See page 479. Please be aware that the version given in class is stronger.)

Problems to be graded: [8 points]

§7.2/ 23, 24, 28, 29

§7.3/ 21, 22,

§5.1/ 16, 20,

Please also do these. (2 points)

Use the Master Theorem to give an asymptotic bound for the sequence $f(n)$ where $f(n)$ satisfies the following recurrences:

1. $f(n) = 4f(n/2) + n$
2. $f(n) = 4f(n/2) + n^2$.
3. $f(n) = f(9n/10) + n$
4. $f(n) = 7f(n/3) + n^2 \log n$.

Other problems:

§7.1/ 11, 14, 19, 23, 24, 44

§7.2/ 19, 21, 22

§7.3/12, 13

§5.1/ 5, 8, 9, 10, 22, 24, 26, 27, 28, 29, 33, 34, 35