

MATH 302 Discrete Mathematics
Assignment 1. Due on Wednesday, January 25, 2012
6th edition of the textbook

Read: Sections 3.1-3.2 of the 6th edition.

Definition: Write down the definitions for the following terms.

algorithm,

greedy algorithm,

$f(x)$ is $O(g(x))$,

$f(x)$ is $\Omega(g(x))$,

$f(x)$ is big-Theta of $g(x)$

Problems to be graded:

§3.1: 8, 9,

§3.2: 6, 7, 16, 18, 20, 30, 38.

In addition, do

1. Given a list of integers a_1, a_2, \dots, a_n , ($n \geq 100$), which may not be sorted, describe an algorithm that finds the second largest integer from the list.

(You can either write in pseudocode, or use plain English. Please do not use any specific language, as the grader may not be familiar with that language.

Please test your algorithm on the list $1, 1, 2, 2, 3, 3, \dots, n, n$. Your algorithm should return the number n .)

Suggested Practice Problems:

§3.2: 1, 2, 3, 4, 8, 9, 19, 24, 31, 39, 40, 41, 51, 64.