22C : 031 **Algorithms**
Homework 1
Due Tuesday, September 18

You are expected to do the homework assignments on your own without consulting human and non-human sources (like web pages or books) for the solutions.

1. Exercise 4 of Chapter 1. (15 points)

2. Exercise 2 of Chapter 2. (10 points)

3. Exercise 6 of Chapter 2. (20 points)

4. Let T be a function on the positive integers that takes on non-negative real values, and f be a function on the positive integers that takes on *strictly positive* real values. Show that the following two statements are equivalent: (a) There exist constants $c > 0$ and $n_0 \geq 1$ so that $T(n) \leq cf(n)$ for all positive integers n that are at least n_0. (b) There exists a constant $d > 0$ so that $T(n) \leq df(n)$ for all positive integers n. (15 points)