Math 30210 — Introduction to Operations Research

Assignment 3 (55 points total)

Due before class, Wednesday September 19, 2007

Instructions: Please present your answers neatly and legibly. Include a cover page with your name, the course number, the assignment number and the due date. The course grader reserves the right to leave ungraded any assignment that is disorganized, untidy or incoherent. You may turn this assignment in before class, or leave it in my mailbox (outside 255 Hurley Hall). It can also be emailed; if you plan to email, please check with me to see if the format you plan to use is one that I can read. No late assignments will be accepted. It is permissible (and encouraged) to discuss the assignments with your colleagues; but the writing of each assignment must be done on your own.

Reading: Sections 3.1, 3.2 and 3.3 (Subsection 1 only).

1. (5 points) Put the following linear program in standard form.

   Maximize

   $$3x + 4y - 2z$$

   subject to

   $$\begin{gathered} 2x - 5y \leq 4 \\ x + y + z = 2 \\ 4x - 3z \leq -2 \\ x \geq 0 \\ -5 \leq y \leq 10 \\ z \text{ unrestricted} \end{gathered}$$

2. (5 questions, each worth 5 points) Taha, Problem set 3.2A, Problems 1 through 5.

   Note: There is a typo on problem 3! The second constraint should read

   $$2x_1 + x_2 \geq 16.$$

3. (5 questions, each worth 5 points) Taha, Problem set 3.3A, Problems 1 through 5.