

Math 30210 — Introduction to Operations Research

Assignment 10 (each question 6 points; 48 points total)

Due before class, Wednesday November 14, 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 4.4 and 4.5.

1. Use the generalized simplex algorithm to solve the following problem (turn all constraints into \leq , and start with the (infeasible) all-slack starting solution).

Maximize $10x - 12y + 18z$ subject to $x, y, z \geq 0$ and

$$\begin{aligned}2x + z &\geq 2 \\ -x + 4y + z &\leq 3.\end{aligned}$$

2. Taha 4.4A Problem 1.
3. Taha 4.4A Problem 2 b).
4. Taha 4.4A Problem 3.
5. Taha 4.5A Problem 4 (Use TORA to find the final tableau and solution for Week 1; use post-optimality analysis to develop an optimal solution for Week 2, and then say what should be the entering and departing basic variables in the first step of the post-optimality analysis to find the optimal solution for Week 3. There's no need to go any further than this.)
6. Taha 4.5B Problem 2.
7. Taha 4.5C Problem 2 b).
8. Taha 4.5D Problem 4.