

Math 30210 — Introduction to Operations Research

Assignment 6 (50 points total)

Due before class, Wednesday October 10, 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: Section 3.5.

1. (8 points) Taha 3.5A Problem 4

For this problem, you should first verify that the given linear programming problem exhibits cycling, as described. You should then verify that if the first constraint is multiplied by four, and the second by two (to eliminate fractions), then cycling does not occur. To see that this actually had nothing to do with eliminating fractions, check to see that if you multiply the original first constraint by three, and leave the remaining constraints unchanged, then again cycling does not occur.

Once you've done all of this, here is what you earn the points for: explain what's going on! What changes, when you scale the constraints, that causes cycling not to occur? (To answer this question, you will need to refer to the sequences of tableau generated in the first part of the problem.)

2. (5 points each) Taha 3.5B Problems 1, 2 and 3

3. (5 points each) Taha 3.5C Problems 1 and 2

4. (7 points) Taha 3.5C Problem 3

5. (5 points each) Taha 3.5D Problems 1 and 2