Due: Friday, October 23rd (drop box, 1 p.m.)

Reading

For Wednesday, October 14th, Chapter 5, Section 9.

For Friday, October 16th, Chapter 6, through Section 3.

For Wednesday, October 21st, to the end of Chapter 6.

For Friday, October 23th, Chapter 7, Section 1.

Assignment exercises to hand in

1. Chapter 5, problem 1.

2. Chapter 5, problem 5.

3. Chapter 5, problem 6.

4. Solve the linear program of Chapter 2, Problem 7 using the dual-primal 2 phase algorithm.

5. Chapter 5, problem 15.

6. Given the linear program:

$$(P) \quad \begin{aligned} \text{maximize} \quad & -2x_1 - 7x_2 + 6x_3 \\ \text{subject to} \quad & x_1 - 5x_2 + 5x_3 \leq -4, \\ & x_1 + x_2 - x_3 \leq 1, \\ & -x_2 + x_3 \leq 0 \\ & x_1, x_2, x_3 \geq 0 \end{aligned}$$

Consider the feasible point $x^* = (0, \frac{4}{5}, 0)$. Check that this is a vertex solution to (P). Write the dual problem (D) to (P) and construct a solution y^* to (D) satisfying complementary slackness with x^*. Conclude that x^* is optimal for (P).

7. Chapter 6, problem 1.

8. Chapter 6, problem 2.

Bonus, for a small amount of additional credit

Chapter 4, Problem 6.

Some other exercises you should try

Try problems 5.10 and 5.11 for additional simplex practice.

Reminders

The late withdrawal (WD) deadline is Sunday, October 18th. (A bit later than originally advertised.)

The midterm takes place in class on **Friday, October 30th**.