

MA 421 Fall 2025 (Aaron N. K. Yip)
Homework 5, due on Thursday, Oct 2nd, 11:59pm, in Gradescope

1. [V] (*Linear Programming, Foundations and Extensions*, **5th edition**)
p.83: #5.7, 5.8, 5.9;
p.106: #6.1, 6.2;
p.119: #7.1
2. [C] p.147, #9.5. (You do not need to generalize Theorems 5.2 and 5.3. Just verify if the proposed solution is optimal.)
3. As a newly hired data scientist, your very first assignment was to solve problem (2.1) in [V, p.11].

This was such a difficult problem that you needed to use one week to solve it. You submitted its solution (2.4) in [V, p.13] to your boss.

Your boss said, “Oops. I forgot to tell you an extra constraint, $3x_1 + x_2 - x_3 \leq 3$. Can you tell me the new solution, *real soon*?”

Your inner-self tells you that “*real soon*” cannot mean another week of work. What would you do¹?

¹Your inner-self says (again), “Think Dual! That can never go wrong!”