

Homework #4

Please write your answers on a separate sheet of paper, and include at least some intermediate steps and English words.

This homework is intended to cover sections 3.1 and 3.2.

- 1 Find the dual of the following linear programming problem.

$$\text{Maximize } z = 6x_1 + 6x_2 + 8x_3 + 9x_4$$

subject to

$$x_1 + 2x_2 + x_3 + x_4 \geq 3$$

$$2x_1 + x_2 + 4x_3 + 9x_4 \geq 8$$

$$x_1, x_2, x_3, x_4 \geq 0$$

- 2 Suppose that a linear programming problem has no feasible solutions. What does the Duality Theorem say about solutions to the dual problem?