

6.1.1

$$Z = -3x_1 + 2x_2 + 10x_3 - x_4 \rightarrow \max$$

s.t

$$-x_1 + 2x_2 - 3x_3 + 4x_4 \leq 7$$

$$-3x_2 + 2x_3 - 5x_4 \leq 12$$

$$2x_1 + 2x_2 + 7x_4 \leq 15$$

$$x_j \geq 0, j = 1, 2, 3, 4$$

- a) Rewrite the problem as an augmented LP problem ready to be solved by the simplex method.
- b) Work through the simplex method step by step to solve the augmented LP problem.

6.1.2

Work through the simplex method step by step to solve the following problem

Maximize

$$Z = 4x_1 + 3x_2 + 6x_3$$

$$3x_1 + x_2 + 3x_3 \leq 30$$

$$2x_1 + 2x_2 + 3x_3 \geq 10$$

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