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

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

$$3x_1 + x_2 + 3x_3 \leq 30$$
$$2x_1 + 2x_2 + 3x_3 \geq 10$$
$$x_1 \geq 0, x_2 \geq 0, x_3 \geq 0,$$