

MAT 570 - Linear Programming
Summer 2010
Homework 6 Part II (4.3/4.4)

Consider the following LP problems.

1.

$$\text{Maximize: } z = 320x_1 + 240x_2$$

$$\text{Subject to: } \begin{array}{rcl} 5x_1 + 3x_2 & \leq & 12 \\ 4x_1 + 6x_2 & \leq & 24 \end{array}$$

$$x_i \geq 0, \quad 1 \leq i \leq 2$$

2.

$$\text{Maximize: } z = 2x_1 - x_2 + 8x_3$$

$$\text{Subject to: } \begin{array}{rcl} 2x_3 & \leq & 1 \\ 2x_1 - 4x_2 + 6x_3 & \leq & 3 \\ -x_1 + 3x_2 + 4x_3 & \leq & 3 \end{array}$$

$$x_i \geq 0, \quad 1 \leq i \leq 3$$

For each problem

(a) write out the associated tableau in block matrix notation.

(b) Construct the relevant pivoting matrices to implement the simplex method. Find the optimal solution and value.