

Last name _____

First name _____

LARSON—OPER 731—CLASSROOM WORKSHEET 05
Fourier-Motzkin Elimination

1. Use Fourier-Motzkin elimination to solve the following LP:

Maximize:

$$z = x_1 + x_2 + x_3$$

Subject to:

$$x_1 + x_2 \leq 1$$

$$x_2 + x_3 \leq 1$$

$$x_i \geq 0.$$

2. Let $X = \left\{ \begin{bmatrix} 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \end{bmatrix} \right\}$. Find a system of linear inequalities so that the feasible region of that system is $\text{conv}(X)$.