Midterm Examination I

CS 525, Semester II, 1996-97

Monday March 17, 1997

If a problem has no solution or an infinite number of solutions, you must clearly state so and *justify* your claim.

Each problem can be solved in 3 tableaus or less including the initial tableau.

1. Solve:

$$\begin{aligned} x_1 + 2x_2 + 3x_3 + 4x_4 &= 1 \\ -x_1 + 2x_3 &= 2 \\ 3x_1 + 4x_2 + 4x_3 + 8x_4 &= 0 \end{aligned}$$

2.

$$\begin{array}{llcl} \min & -x_1 + 2x_2 - x_3 & & \\ \text{subject to} & 2x_1 - 2x_2 - x_3 & \geq & 3 \\ & x_1 + x_2 - 3x_3 & \geq & 0 \\ & -x_1 + 4x_3 & \leq & 2 \\ & x_1, x_2, x_3 & \geq & 0 \end{array}$$