OR(I) Homework 2 due:04-13

1. Use the big-M method to solve the following LP problem.

$$\begin{aligned} \min \quad & Z = 3x_1 + 8x_2 + 5x_3 \\ s.t. \quad & 3x_2 + 4x_3 \geq 70 \\ & 3x_1 + 5x_2 + 2x_3 \geq 70 \\ & x_1,\ x_2,\ x_3 \geq 0 \end{aligned}$$

2. Use the two-phase method to solve the following LP problem.

$$\begin{aligned} \max \quad & Z = 2x_1 + 5x_2 + 3x_3 \\ s.t. \quad & x_1 - 2x_2 + x_3 \geq 20 \\ & 2x_1 + 4x_2 + x_3 = 50 \\ & x_1,\ x_2,\ x_3 \geq 0 \end{aligned}$$

3. Solve the following LP problem.

$$\begin{aligned} \max \quad & Z = 4x_1 + 5x_2 + 3x_3 \\ s.t. \quad & x_1 + x_2 + x_3 \geq 20 \\ & 15x_1 + 6x_2 - 5x_3 \leq 50 \\ & x_1 + 3x_2 + 5x_3 \leq 30 \\ & x_1,\ x_2,\ x_3 \geq 0 \end{aligned}$$