

**CS 451**  
**Activity 16-1**

**[Simplex Algorithm]** (Page 130 the textbook)

1. Convert the Giapetto problem (Example 1 in Chapter 3) to a standard form.

$$\max z = 3 x_1 + 2 x_2$$

subject to (s.t.)

$$2 x_1 + x_2 \leq 100$$

$$x_1 + x_2 \leq 80$$

$$x_1 \leq 40$$

$$x_1 \geq 0$$

$$x_2 \geq 0$$

2. Convert the Dorian problem (Example 2 in Chapter 3) to a standard form.

$$\min z = 50 x_1 + 100 x_2$$

s.t.

$$7 x_1 + 2 x_2 \geq 28$$

$$2 x_1 + 12 x_2 \geq 24$$

$$x_1, x_2 \geq 0$$

3. Convert the following LP to a standard form:

$$\min z = 3x_1 + x_2$$

s.t.

$$x_1 \geq 3$$

$$x_1 + x_2 \leq 4$$

$$2x_1 - x_2 = 3$$

$$x_1, x_2 \geq 0$$