

Finite Mathematics, Summer 2010, quiz #3, Friday July 23, 2010

1. Bata Aerobics Manufactures **two models** of steppers used for aerobic exercises. Manufacturing each **luxury model** requires **10 lb** of plastic and **10 minutes** of labor. Manufacturing each **standard model** requires **16 lb** of plastic and **8 minutes** of labor. The **profit** for each **luxury model** is **\$40**, and the **profit** for each **standard model** is **\$30**. If **6000 lb** of plastic and **60 labor hours** are **available** for production of the steppers *per day*, how many steppers of each model should Bata produce *each day* in order to **maximize** it's profit? What is the optimal profit?
  - Write the given data in a table
  - Write the proper inequalities and the objective function
  - Draw the corresponding region
  - Find the maximum, using the method of the corners
2. (*optional*) With the same assumptions, how many steppers of each model should Bata produce **every two days** in order to maximize it's profit? What is the optimal profit? (Hint1: The remainder of the plastic at each day can be saved for the next day. Change the inequalities according to this fact. Hint2: The labor hours cannot be saved for the next day. So just one of the inequalities will be changed. Hint3: This doesn't necessarily change the solution from being two times of the answer in the problem 1)