WS#10-8A
Linear Programming

1. A fruit grower has 150 acres of land available to raise two crops, apples and peaches. It takes one day to trim an acre of apple trees and two days to trim an acre of peach trees. There are 240 days per year available for trimming. It takes 0.3 days to pick an acre of apples and 0.1 day to pick an acre of peach trees. There are 30 days available for picking. Find the number of acres of each fruit that should be planted to maximize profit, assuming the profit is $140.00 per acre for apples and $235.00 per acres for peaches.

2. A farming cooperative mixes two brands of cattle feed. Brand X costs $25 per bag and contains 2 units of protein, 2 units of carbohydrates and 2 units of fat. Brand Y costs $20 per bag and contains 1 unit of protein, 9 units of carbohydrates and 3 units of fat. Find the number of bags of each brand that should be mixed at a minimum cost if each animal needs a minimum of 12 units of protein, 36 units of carbohydrates and 24 units of fat.

3. A fruit juice company makes two special drinks by blending orange juice and pineapple juice. The first drink uses 30% orange juice and 70% pineapple juice, while the second drink uses 60% orange juice and 40% pineapple juice. There are 1000 liters of orange juice and 1500 liters of pineapple juice available. If the profit on the first drink is $.60 per liter and for the second drink is $.50 per liter, find the number of liters of each drink that should be used to maximize profit.

4. A farmer has 20 days in which to plant corn and beans. The corn can be planted at the rate of 10 acres per day and beans can be planted at the rate of 15 acres per day. The farmer has 250 acres available. If corn profits at $30 per acre and beans profit at $25. per acre, find the amount of each that should be planted to maximize profit.