1. Betty Malloy, owner of the Eagle Tavern in Pittsburgh, is preparing for Super Bowl Sunday, and she must determine how much beer to stock. Betty stocks three brands of beer – Yodel, Shotz, and Rainwater. The cost per gallon (to the tavern owner) of each brand is as follows:

Brand Cost/gallon

Yodel $1.50

Shotz $0.90

Rainwater $0.50

The tavern has a budget of $2,000 for beer for Super Bowl Sunday. Betty sells Yodel at a rate of $3.00 per gallon, Shotz at $2.50 per gallon, and Rainwater at $1.75 per gallon. Based on past football games, Betty has determined the maximum customer demand to be 400 gallons of Yodel, 500 gallons of Shotz, and 300 gallons of Rainwater. The tavern has a capacity to stock 1,000 gallons of beer; Betty wants to stock up completely. Betty wants to determine the number of gallons of each brand of beer to order so as to maximize profit.

2. A transportation problem involves the following costs, supply and demand.

 To

From 1 2 3 4 Supply

1 $500 $750 $300 $450 12

2 650 800 400 600 17

3 400 700 500 550 11

Demand 10 10 10 10

a. Formulate a linear programming model for these problems written in a format similar to:

Maximize Z = 0X1+0X2+0X3

Subject to: …