36. The Yeasty Brewing Company produces a popular local beer known as Iron Stomach. Beer sales are somewhat seasonal, and Yeasty is planning its production and workforce levels on March 31 for the next six months. The demand forecasts are as follows:

Month	Production Days	Forecasted Demand (in hundreds of cases)
April	11	85
May	22	93
June	20	122
July	23	176
August	16	140
September	20	63

As of March 31, Yeasty had 86 workers on the payroll. Over a period of 26 working days when there were 100 workers on the payroll, Yeasty produced 12,000 cases of beer. The cost to hire each worker is $125 and the cost of laying off each worker is $300. Holding costs amount to 75 cents per case per month.

As of March 31, Yeasty expects to have 4,500 cases of beer in stock, and it wants to maintain a minimum buffer inventory of 1,000 cases each month. It plans to start October with 3,000 cases on hand.

a. Based on this information, find the minimum constant workforce plan for Yeasty over the six months, and determine hiring, firing, and holding costs associated with that plan.

b. Suppose that it takes one month to train a new worker. How will that affect your solution?

c. Suppose that the maximum number of workers that the company can expect to be able to hire in one month is 10. How will that affect your solution to part (*a*)?

d. Formulate the problem levels as a linear program. [You may ignore the conditions in parts (*b*) and (*c*).]

e. Solve the resulting linear program. Round the appropriate variables and determine the cost of your solution.

f. Suppose Yeasty does not wish to fire any workers. What is the optimal plan subject to this constraint?

company sells canned vegetables to a supermarket chain in the Minneapolis