# Practice Problem 1

Nelson's Hardware Store stocks a 19.2 volt cordless drill that is a popular seller. Annual demand is 5,000 units, the ordering cost is $15, and the inventory holding cost is $4/unit/year.

a. **What is the economic order quantity?**
b. **What is the total annual cost for this inventory item?**

# Practice Problem 2

Speedy Wheels is a wholesale distributor of bicycles for Singapore. The company is currently reviewing the inventory policy for one popular model that is selling at the rate of 250 per month. The administrative cost for placing an order for this model from the manufacturer is $200 and the purchase price is $70 per bicycle. The annual cost of the capital tied up in inventory is 20% of the value of these bicycles. The additional cost of storing the bicycles – including leasing warehouse space, insurance, taxes, and so on – is $6 per bicycle per year.

# Practice Problem 2

Find the optimal order quantity and the sum of annual ordering and holding costs.

# Practice Problem 3

The Lee family drinks a case of Royal Cola every day, 365 days a year. Fortunately, a local distributor offers quantity discounts for large orders as shown below.

| Discount Category | Quantity Purchased | Price (per case) |
|---|---|---|
| 1 | 1 to 49 | $4.00 |
| 2 | 50 to 99 | $3.90 |
| 3 | 100 or more | $3.80 |

Considering petrol cost, Mr. Lee estimates it costs him about $5 to go pick up an order of Royal Cola. Mr. Lee also is an investor in the stock market, where he has been earning a 20% average annual return. He considers this opportunity cost to be the only holding cost for the Royal Cola.

# Practice Problem 3

(a) Determine the optimal quantity that the Lee family must order. What is the resulting **total cost including purchase cost**?

(b) With this order quantity, how many orders need to be placed per year? What is the time interval between orders?

# Practice Problem 4

Kenichi Kaneko is the manager of a production department which uses 400 boxes of rivets per year. To hold down his inventory level, Kenichi has been ordering only 50 boxes each time. However, the suppliers of rivets now is offering a discount for higher quantity orders according to the given price schedule. The company uses an annual holding cost rate of 20% of the price of the item. The total cost associated with placing an order is $80 per order.

# Practice Problem 4 (Contd.)

| Discount Category | Quantity Purchased | Price (per case) |
|---|---|---|
| 1 | 1 to 99 | $8.50 |
| 2 | 100 to 999 | $8.00 |
| 3 | 1,000 or more | $7.50 |

(a) What is the optimal order quantity and the resulting **total cost including purchase cost**?

(b) With this order quantity, how many orders must be placed per year? What is the time interval between orders?