1. Michael Traci, the new inventory manager at Magyar Golf Supplies, is considering using the economic order quantity for controlling inventory. He wants you to apply the EOQ to a sample product, the Super-Z Wedge. The super-Z wedge has an average demand of 30 units/period with an ordering cost of $30/order. The cost of carrying a Super-Z Wedge in inventory is $2.00/unit/period. No safety stock is carried for this item.

   a. Calculate the economic order quantity.
   b. Calculate the average cycle stock for this item using the order quantity in part a.
   c. Assuming there are 12 periods per year, calculate the total cost per year.

2. An ice cream shop sells hand-packed pints of its homemade ice cream. Pints of ice cream are sold at the rate of 10 per day, and the store is open 300 days each year. The ice cream can be made and packed in pints at a rate of 50 pints per day. Storage costs are $0.50 per pint per month, and the cost to prepare the ice cream mixing machine is $15 per batch of ice cream.

   a. Calculate the economic run size for a batch of ice cream.
   b. How many batches of ice cream will be produced per year?
   c. What is the maximum inventory level of pints of ice cream?
   d. How long is the cycle time and run time for this operation?

3. A Trucking Company’s purchasing manager received the following quote from a supplier of a maintenance item:

<table>
<thead>
<tr>
<th>Purchase quantity/order</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1,000 units</td>
<td>$100/unit</td>
</tr>
<tr>
<td>1,000 units or more</td>
<td>$85/unit</td>
</tr>
</tbody>
</table>

If ordering cost equals $50, annual volume equals 2,000 units, and cost of holding inventory is 20 percent of item value per unit per year, what is the total annual cost of the minimum-cost order quantity?