Question 1.

The cost for a manufacturer to make a product is $1/unit. Product is sold to the retailer for $7/unit and then the retailer sells the units for $10/unit. The manufacturer will buy back any unsold units for $6/unit, but the manufacturer can’t sell any of these buyback units. Assume average sales are 1000 units with a standard deviation of 300 units.

1. What is the retailer’s target service level?
2. What is the retailer’s optimal order size?
3. What is the retailer’s expected profit?
4. What quantity would you expect the retailer to return?
5. What is the manufacturer’s expected profit?
6. What is the supply chain profit?

Question 2.

The cost for a manufacturer to make a product is $1/unit. The retailer sells the units for $10/unit to the customer. The manufacturer agrees to a revenue sharing contract under which the retailer is charged only $2/unit and the manufacturer gets 45 percent of the retailer's revenue. If the retailer has any unsold inventory, he has to throw them away (Sr=0). Assume average sales are 1000 units with a standard deviation of 300 units.

1. What is the retailer’s target service level?
2. What is the retailer’s optimal order size?
3. What is the retailer’s expected profit?
4. What quantity would you expect the retailer to return?
5. What is the manufacturer’s expected profit?
6. What is the supply chain profit?