Show all your steps to get credit.

Reading assignment: Read Chapter 5.

1. (4 points) What are the major assumptions underlying the basic EOQ model?

2. (16 points) Maxine's Mobile Home Co. experiences a yearly demand of 500 units for mobile homes; Maxine incurs a cost of $250 every time she places a new order with the factory. She estimates her inventory holding costs at $1,200 per unit per year. Compute,
   (a) The optimal EOQ
   (b) The number of orders per year
   (c) The length of the order cycle
   (d) The total annual inventory costs.

3. (28 points) The Great Southern Motor Co. manufactures electric motors. One particular motor has a known and constant demand rate of 2,000 units per year. The fixed cost of the setup for each production run is $100 and the inventory holding cost is $2 per unit per year. The production rate is 8,000 units per year. Compute,
   a) The optimal EOQ
   b) The maximum inventory level
   c) The average inventory level
   d) The length of time required to produce a lot
   e) The length of time required to deplete the maximum on-hand inventory
   f) The length of the inventory cycle
   g) The total annual cost

4. (20 points) Ace Office Supply Co. is offering discounts on the purchase of boxes of personal computer printer paper. If the order size if 0 to 1,499 the buyer receives no discount and each computer unit costs $10.00. If the order size if 1,500 to 2,499 then the buyer receives a discount of 2% and each computer costs $9.80. If the order size is $2,500 or above, the buyer receives a discount of 5% and each computer costs $9.50.

Jan Cummings of Worldwide Overnight Express is contemplating a large quantity purchase from Ace Office Supply Co. Her company has more than 1,000 locations throughout the world and each location needs printer paper. Cummings estimates that her company’s annual demand for computer paper is 10,000 boxes, the annual inventory holding costs are 20% of the item unit costs, and the ordering costs are $100 per order. Ace will not back order. What is the least cost quantity that Jan Cummings should order (while satisfying demand)? That is, what order size minimizes Worldwide’s total annual costs?