Name: .

Problems 1 – 4: (1 point each)

The rising popularity of bubble and squeak as a breakfast item on the menu has resulted in a steady demand for peas. Over the course of the past week, 457 patrons have ordered the hearty breakfast and each serving contains a cup of English peas. It costs two cents to hold a cup of peas in inventory for a year and $3 to place an order (remember they come all the way from England!). It takes two weeks to ship a container from England loaded with peas.

1) What is the optimal order quantity?

Answer: (cups)

2) What is the average inventory if they order at the optimal order quantity?

Answer: (cups)

3) How many orders per year does the diner place if they order at the economic order quantity?

Answer: (weeks)

4) What is the average flow time of a cup of peas if the diner orders at the economic order quantity?

Answer: (weeks)

Name: .

Problems 5 – 6: [Marginal Unit Quantity Discount] (2 points each)

With a fixed cost of $100 per order, Nathan decided it was vital to get his money's worth. His monthly demand for energy drinks was 10,000 bottles and holding cost was estimated at 20% of unit cost. The mail order company offered him a couple of possibilities —

The marginal unit discount pricing schedule is

Order Quantity	Marginal Unit Price
0-10,000	C_0 = 4.00
10,000-20,000	C_1 = 3.98
Over 20,000	C_2 = 3.96

5) What is the best order quantity for Nathan to use? **Answer:** .

6) What is the best total cost that Nathan can incur? **Answer:** .

Name: .

Problems 7 – 8: [All Unit Quantity Discount] (2 points each)

Robert Morris Hospital (RMH) orders its own supplies and manages the inventory. A common item used is a sterile Intravenous (IV) Starter Kit. Weekly demand for the IV Starter Kit is 520 units. The unit cost of an IV Starter Kit is $2. Robert Morris has estimated that the physical holding cost (operating and storage costs) of one unit of medical supply is about 30 percent per year. Each hospital incurs a fixed order cost of $120 whenever it places an order, regardless of the order size. The supplier takes one week to deliver the order. Currently, RMH places an order of 6,400 units of the IV Starter Kit whenever it orders.

The manufacturer of IV Starter Kits uses the following all unit discount pricing schedule:

Order Quantity	Unit Price
0-2,999	$C_0 = 2.00$
3,000-5,999	$C_1 = 1.97$
6,000 or more	$C_2 = 1.94$

7) What is the optimal order quantity? **Answer: .**

8) What is the total cost at the optimal order quantity? **Answer: .**