

Homework 1

Problem 1 (5 points) The following table shows financial data (year 2004) for Costco Wholesale and Walmart.

	Costco (\$ Million)	Walmart (\$ Million)
Inventory	3,643	29,447
Sales (net)	48,106	286,103
COGS	41,651	215,493

Assume that the annual inventory carrying rate of both companies are 40%.

1. (2 points) How many days, on average, does a product stay in Costco's warehouse before being sold?
2. (3 points) Consider a product that costs Costco and Walmart \$50 per unit. How much lower is, on average, the inventory holding cost for Costco compared to Walmart of this product?

Problem 2 (15 points) Westside Auto purchases a component used in the manufacture of automobile generators directly from the supplier. Westside has to meet a steady demand of 1000 per month throughout the year. It estimates that the ordering cost is \$25 per order, the component costs \$2.50 per unit, and the annual inventory carrying rate is 25%. The lead time of the supplier is 5 days. Assuming that there are 365 days in a year, answer the following questions about the inventory policy:

1. (5 points) What is the optimal (Q, R) policy for this component?
2. (3 points) What are the annual holding, ordering, and purchasing cost associated with your recommended (Q, R) policy in part 1?
3. (2 points) What is the order cycle of your recommended (Q, R) policy in part 1?
4. (2 points) Suppose that Westside's management likes the operational efficiency of ordering once each month and in quantities of 1000 units. What is the optimal reorder point when batch size 1000 is used?
5. (3 points) How much more expensive is the (Q, R) policy in part 4 than the recommended policy in part 1?