# Carpet One Carpet Store to Cut Inventory Holding Cost

**Case Type:** reduce costs, finance & economics.
**Consulting Firm:** NERA Economic Consulting first round full time job interview.
**Industry Coverage:** textiles.
**Case Interview Question #00785:** Carpet One Floor & Home is a home design retailers' cooperative in the carpet, rug, and other home design products. Our client owns a Carpet One specialty carpet store in downtown St. Louis, Missouri. One of their most popular items is the chartreuse shag carpet. A shag is a rug or carpet that has a deep pile, giving it a shaggy appearance.

Shag Carpets are the thickest carpets on the market. Some have long skinny fibers, while others have shorter thicker carpet fibers. Originally created in the hey day of the 1960's, shag carpet has made a big come back with designers. In recent years, shag carpeting has seen a resurgence of popularity.

Our client would like to improve their profit on this particular chartreuse shag product. How would you go about helping the client?

**Possible Answer:**

**Question 1:** Please evaluate some possible ways to improve their profit on the chartreuse shag carpet.

**Suggested Solution:**

Profits = Revenues – Costs = (Price * Volume) – (Fixed Cost + Variable Cost)

The interviewee should break the profitability problem down into price, volume, and cost. Using the chart below, direct their answer towards cost.

Provide the following additional information only if requested and necessary:

a. Revenues

- Price: Already at high
- Volume:
    - Sales = Demand: 300/month = 10/day
    - At highest the client can sell – even with promotions

b. Cost

- Fixed Cost: Fixed cost for every order: $5
- Variable Cost:
    - Cost per Shag ordered: $100
    - Minimum Shags in an order (per supplier): 20
    - Shag overnight: $1

**Question 2:** The client has discovered that a pile-up of inventory and high ordering costs can be blamed for the low profits on their carpet. Could you think of some ways to reduce these costs?

**Suggested Solution:**

- Order less inventory using demand forecasts as guides.
- Work with supplier to reduce order costs.

- Reduce cost of inventory storage.

**Question 3:** The client has decided to optimize its inventory ordering costs by calculating the optimal amount of Shag carpets to order to keep inventory at the lowest cost level. Calculate this value.

**Suggested Solution:**

10 Shag Carpets in Inventory.

The interviewee should either use the Economic Order Quantity (EOQ) formula or logic. An example of possible logic would be to use something like the tables below to determine EOQ:

| Order 20 Carpets at a time | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| Shags in inventory | 20 | 10 | 20 |
| Cost ($) | | $5 (order cost) | $10 (cost to store 10 carpets) $5 (order cost) |
| Remaining inventory | 10 | 0 | 10 |

| Order 10 Carpets at a time | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| Shags in inventory | 10 | 10 | 10 |
| Cost ($) | | $5 (order cost) $5 (order cost) $5 (order cost) |
| Remaining inventory | 0 | 0 | 0 |

Economic order quantity (EOQ) is the order quantity that minimizes the total inventory holding costs and ordering costs. It is one of the oldest classical production scheduling models. EOQ applies only when demand for a product is constant over the year and each new order is delivered in full when inventory reaches zero. There is a fixed cost for each order placed, regardless of the number of units ordered. There is also a cost for each unit held in storage, commonly known as holding cost, sometimes expressed as a percentage of the purchase cost of the item.

The interviewer should provide the EOQ formula if needed (the interviewee is not expected to know the formula):

EOQ formula = sqrt(2 * Demand * Order Cost / Holding Cost)

**Question 4:** What is your final recommendation to the client for lowering costs?
**Suggested Solution:**
The interviewee first should summarize his/her analysis, then suggest possible strategies:

- Convince Shag supplier to reduce the minimum order to 10 carpets.
- Lower inventory storage cost to $0.50 per day.