**Solved Problems: EOQ, Holding Costs, Ordering Costs, and Reorder Points**

Dr. Bateh’s training company in Jacksonville, Florida stocks textbooks and workbooks with the following characteristics:

Demand (D) = $19,500 units per year  
Ordering Cost (S) = $25 per order  
Holding Cost (H) = $4 per unit per year

1. Calculate the Economic Order Quantity for the books

EOQ is an inventory control technique that minimizes the total of ordering and holding costs. The solution will tell us how many books we should order each time we place an order, so that we can minimize our total costs.

Q\* = optimum number of units per order =Square root of 2xDS  
 H

(2 x $19,500 x $25)  
 $4  
 = 975,000 / 4  
 = 243750  
 =Square Root of 243750  
 **= 493.71 or 494**

Now, we can predict our holding and orderings costs for each order.

1. What are the annual holding costs for the books?

(Order Quantity / 2) \* Holding cost per unit per year  
=(494/2) \* 4  
**=$988**

1. What are the annual ordering/setup costs?

(D/Q) \* S

=($19,500/494) \* 25  
**=$986.84**

1. Dr. Bateh would like to know at what point in the inventory he should replenish his inventory and place another order. This will avoid ordering too late and risk running out, and also avoid ordering too soon and having too much inventory on hand (and incur the holding costs).

Find the optimal reorder point.

Annual Demand = 10,000 units  
300 days per year in operations  
Lead time = 5 working days

Reorder point (ROP) = (Demand/Day)\*Lead = (10,000/300)\*5 = **166 units is the reorder point.**

The reorder point figure is important because it will allow Dr. Bateh will always have enough inventory left while he is waiting on the next order to come in without running out.