

### **FINDING THE OPTIMAL ORDER SIZE AT SHARP, INC. Solution**

Sharp, Inc., a company that markets painless hypodermic needles to hospitals, would like to reduce its inventory cost by determining the optimal number of hypodermic needles to obtain per order.

- a- The annual demand is 1,000 units; the setup or ordering cost is \$10 per order; and the holding cost per unit per year is \$.50.
- b- If D increases to 1,200 units, what is the new  $Q^*$ ?

### **COMPUTING NUMBER OF ORDERS AND TIME BETWEEN ORDERS AT SHARP, INC.**

- a- Sharp, Inc. has a 250-day working year and wants to find the number of orders (  $N$  ) and the expected time between orders (  $T$  ).
- b- If  $D = 1,200$  units instead of 1,000, find  $N$  and  $T$  .

### **COMPUTING COMBINED COST OF ORDERING AND HOLDING**

- a- Sharp, Inc. wants to determine the combined annual ordering and holding costs.
- b- Find the total annual cost if  $D = 1,200$  units

### **EOQ IS A ROBUST MODEL Management**

in the Sharp, Inc., examples underestimates total annual demand by 50% (say demand is actually 1,500 needles rather than 1,000 needles) while using the same  $Q$  .

How will the annual inventory cost be impacted?

- a- We will solve for annual costs twice. First, we will apply the wrong EOQ; then we will recompute costs with the correct EOQ.
- b- Demand at Sharp remains at 1,000,  $H$  is still \$.50, and we order 200 needles at a time. But if the true order cost  $S = \$15$  (rather than \$10), what is the annual cost?