Question 1:

Bill Borrow computer education center stocks workbooks with an annual demand of 10000 units, ordering costs are $25 per order and holding costs are $12.50 per unit per year.

A) Calculate EOQ
B) Calculate holding costs for the workbooks
C) Calculate ordering costs for the workbooks
D) Why are the holdings and ordering costs the same?

Answer:

A) $\sqrt{2DS/H}$ = $\sqrt{2(10000)(25)}{12.50}$ = 200 workbooks

B) **(Q/2) *H**= 200/2*12.50= $1250

C) **(D/Q) *S**= 10500/200*25= $1250

D) EOQ is the optimal order quantity where both the holding costs and the inventory ordering costs are minimized. It is also the point where holding costs = ordering costs. That is why the two costs equal each other.
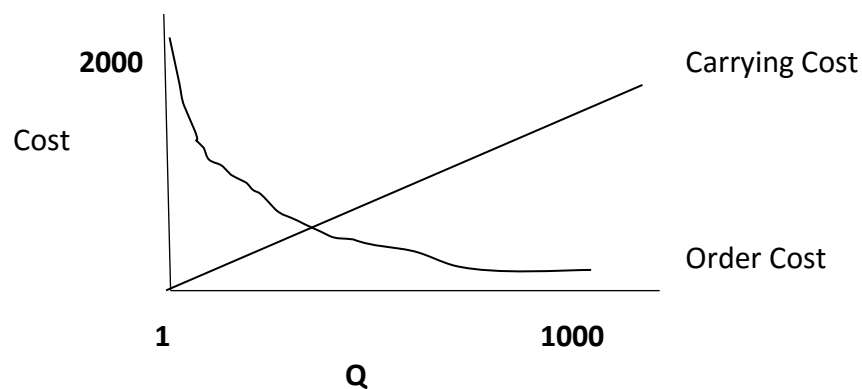
Question 2:

Taylor toys sells Bratz dolls. Her best selling doll has an average demand of 400 units per year. Ordering costs are $40, holding cost is $5 per unit per year.

- A) To minimize total cost how many Bratz dolls should she order at a time?
- B) If the holding cost were $6 instead of $5, would the optimal ordering quantity go up or down? Prove your answer.
- C) If transportation (ordering) costs decreased from $40 to $30, what would happen to EOQ? Prove it out. (note- holding costs $5)

Answers:

A) $EOQ = \sqrt{2DS/H} = \sqrt{2(400)(40)/5} = 80$

B) EOQ should go down because it costs us more money to hold inventory. Remember the graph (not to scale from question)

$EOQ = \sqrt{2DS/H} = \sqrt{2(400)(40)/6} = 73$

C) EOQ should also go down as it costs less to place an order.

$EOQ = \sqrt{2DS/H} = \sqrt{2(400)(30)/5} = 69$

Question 3:

Lead time for one of the fastest moving products is 3 weeks. Demand for the year averages 5000 units, based on a 50 week year (we need at least 2 weeks vacation!). Safety stock is calculated to be 200 units. Calculate reorder point.

Answer:

ROP= dl + SS = (50000/50 weeks= 100 per week for demand) = (100*3) + 200 = 500

Question 4:

Annual demand for the notebook binders at Mary's Stationary is 10000 units. Lead time from her supplier is 5 days. Calculate reorder point. Use 365 days in a year for conversion purposes.

Answer:

ROP = dl = (10000/365 days/yr)*5 = 137 (no safety stock given so assume SS = 0)

Question 5:

Louisiana Power and Light orders utility poles on the first business day of the month from its suppliers in Oregon. The target value is 40 poles. It is time to order and there are 5 poles on hand.

A) What is Q?
B) If inventory was 25, what would be Q be now?

Answer:

A) **Q= R - I** = 40-5 =35
B) **Q= R – I** = 40-25 = 15

Question 6

ABC company has sales of $500000 per year and an average inventory of $40000. What are the inventory turns?

Answer:
Inventory Turns = Sales /Average Inventory = $500000/ 40000= 12.5 times

Question 7

XYZ Company has a Sales of $100000 and average inventory of $5000. What are the inventory turns?

Answer:

Inventory Turns = Sales /Average Inventory = $100000/ 5000= 20 times

Question 8

Chester Vending Company has many vending machines in local sports arenas. On Friday they visited RIM park to restock the machines. In the chip section each spot holds 20 bags. If there are 5 bags left of Salt and vinegar chips, how many does Chester need to restock?

Answer:

Q= R - I = 20-5= 15 bags of salt and vinegar chips need to be restocked.

Question 9

Rickert Inc. produces soft fuzzy slippers. The company is thinking about outsourcing the production of these slippers to Ole, a manufacturer in Spain. Rickert management has identified four dimensions to consider: quality of parts and service, on-time delivery, cost (from part a) and management stability. The importance weights for these dimensions are 0.3, 0.3, 0.3 and .1 respectively. They have also rated the performance of Rickert and Ole in the chart below. 1= poor to 5 = excellent.

Using a weighted point average, evaluate which option should be used.

Dimension	Rickert	Ole
Quality of parts and service	5	4
On-time Delivery	5	4
Cost	3	5
Management stability	5	3

Answer:

Dimension	Rickert	Ole
Quality of parts and service	5 * 0.3 = 1.5	4 * 0.3 = 1.2
On-time Delivery	5* 0.3 = 1.5	4 * 0.3 = 1.2
Cost	3 * 0.3 = .9	5 * 0.3 = 1.5
Management stability	5 *0 .1 = .5	3 * 0.1 = .3
Total	**4.4**	**4.2**

Question 10

Frontline Logistics provides transportation services originating in Ontario for the North American market. They process 15,000 customer requests per year. 14,500 orders are billed correctly, 14,750 arrive on time, 13800 have the correct units shipped, and 14,300 are damage free. What is the percent of perfect orders for Frontline Logistics?

Answer:

Billed incorrectly	500
Shipped late	250
Incorrect units	1,200
Damaged	700
Total Errors	**2,650**

Percentage of perfect orders = [(15,000 − 2,650) / (15,000)] x 100 % **= 82.3 %**