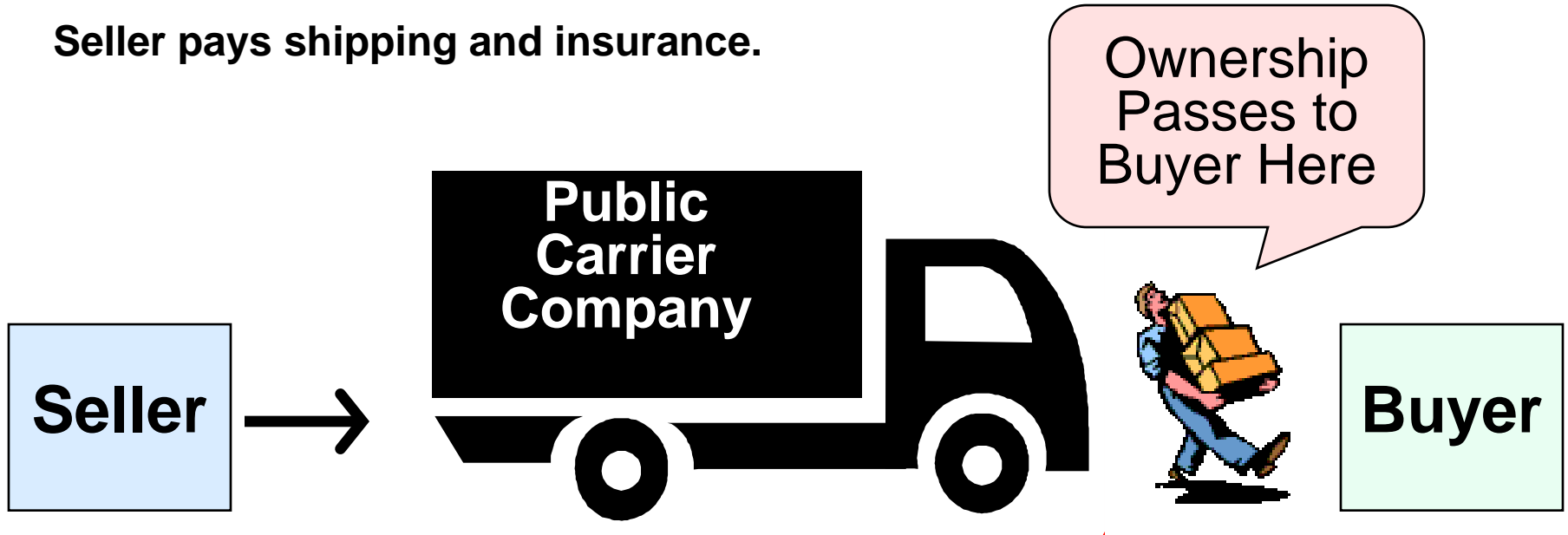


Mastering Inventory

Sections 1-3

FOB Destination

Seller pays shipping and insurance.



FOB Shipping Point

Buyer pays shipping and insurance



2 Ways to Calculate COGS & Inventory

- **Periodic Inventory System** -cost of goods sold (COGS) and inventory determined at end of accounting period
- **Perpetual Inventory System** - COGS and inventory maintained continuously
 - Historically used by companies with low volume and high cost inventory – furniture stores, car dealerships, etc.
 - Today computers and electronic scanners make system accessible to many businesses.

Accounts Used

Periodic Method

Perpetual Method

Buy Inventory	Purchases Purch. Return & Allow. Purchase Discounts Freight In	Merch. Inventory
Sell Inventory	Sales Sales Returns & Allow Sales Discounts	Sales Sales Returns & Allow Sales Discounts COGS
End of Period	COGS	None

What's Included in Inventory

- All costs to bring asset to its intended use (make inventory ready to sell)
 - Purchase price
 - Shipping cost (freight-in)
 - Insurance in transit

Perpetual Method-Buy Inv.

On March 5th, Sheila's Shirt Shop purchased 50 shirts on account for \$8 each from Saipan Co. (Inv#2359).

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/5	Merchandise Inventory	400	
	A/P		400
	(Invoice #2359)		
3/5	Merchandise Inventory	100	
	Cash		100
	(Ck #521)		

Perpetual - Purchase Returns & Allowances

- Reduction in cost of inventory due to returned or defective merchandise.

On 3/15 Sheila's Shirts buys 100 shirts for \$8 each on account from Saipan (Inv# 2460). On 3/16 it returns 20 shirts because they're torn.

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/15	Merchandise Inventory	800	
	A/P		800
	(Saipan #2460)		
3/16	A/P	160	
	Merch. Inventory		160
	(Returned 20 torn shirts)		

Purchase Discounts

- Reduction in amount paid due to prompt payment.

- 2/10, n/30

- 1/15, n/60

- 1/10 EOM

- n30

Purchase Discounts

- **Gross Method – Buyer records cost at gross amount (ignoring cash discount available). Later adjusts for discount if paid in time.**
- **Net Method – Buyer records the cost net of discount (as if it took discount) later adjusts if it does not pay on time (get the discount).**

Purchase Discounts - Perpetual

- On 5/1 you purchase \$1,000 of inventory from with terms of 2/10 n/30.

Gross Method

Purchase

Inventory	\$1,000	
A/P		\$1,000

Pay in Discount Period

A/P	\$1,000	
Inventory		\$20
Cash		\$980

Pay After Discount Period

A/P	\$1,000	
Cash		\$1,000

Net Method

Purchase

Inventory	\$980	
A/P		\$980

Pay in Discount Period

A/P	\$980	
Cash		\$980

Pay After Discount Period

A/P	\$980	
Purch Disc. Lost	\$20	
Cash		\$1,000

Perpetual Method-Sell Inv.

On March 10th, Sheila's Shirt Shop sells 25 shirts on account for \$20 each to Betty's Boutique (Inv#15). The shirts cost \$10 each.

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	Cost of Goods Sold	250	
	Merchandise Inventory		250
	(Invoice #15- Betty's)		

Sales Returns and Allowances

- Amount customers returned and allowances granted.
- **Contra Revenue Account** to sales

Excessive returns and allowances suggest:

- inferior merchandise
- mistakes in delivery or shipment of goods
- inefficiencies in filing orders
- errors in billing customers

Sales Returns & Allowances

On March 10th, Sheila's Shirt Shop sells 25 shirts on account for \$20 each to Betty's Boutique (Inv#15). The shirts cost \$10 each. **On 3/18 Betty's returns 10 shirts.**

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	COGS	250	
	Merch. Inventory		250
	(Sold 25 shirts to Betty's)		
3/18	Sales Returns & Allowances	200	
	A/R		200
	Merchandise Inventory	100	
	COGS		100
	(10 shirts returned – Betty's)		

Sales Discount Account

- **Contra Revenue Account** to sales
- Shows discounts taken by customers for prompt payment.

Sales Discounts

On March 10th, Sheila's Shirt Shop sells 25 shirts for \$20 each to Betty's Boutique with terms 2/10 , n/30. The shirts cost \$10 each. On 3/18 Betty's returns 10 shirts and on **3/19 Sheila is paid in full.**

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	COGS	250	
	Merch Inventory		250
	<i>(Sold 25 shirts to Betty's)</i>		
3/18	Sales Returns & Allowances	200	
	A/R		200
	Merchandise Inventory	100	
	COGS		100
	<i>(10 shirts returned – Betty's)</i>		
3/19	Cash	294	
	Sales Discounts	6	
	A/R		300
	<i>(Betty's payment)</i>		

Periodic Inventory System

Separate accounts used to record:

- Freight In
- Purchase returns and allowances
- Purchase discounts

Purchase Inventory



**Record
Purchases**



Sell Inventory



**Record
Sales Only**



**End
of
Period**

**Record
COGS**

Merchandise Company - Periodic Method

Cost of Goods Sold

For the Year Ended December 31, 2004

Cost of Goods Sold:

Inventory, January 1		\$36,000
Purchases	325,000	
Less Purchase returns and allowances	(10,400)	
Purchase discounts	<u>(6,800)</u>	
Net purchases	307,800	
Add: Freight-in	<u>12,200</u>	
Cost of goods purchased		<u>320,000</u>
Cost of goods available for sale		356,000
Inventory, December 31		<u>(40,00)</u>
Cost of goods sold		<u><u>\$316,000</u></u>

Simplified Cost of Goods Sold Formula

Cost of goods sold:

Beginning inventory	\$ 20
+ Net Purchases	<u>100</u>
= Cost of goods available for sale	120
- Ending inventory	<u>(30)</u>
= Cost of goods sold	\$ 90

Journal Entries

Periodic Method

Periodic Method-Buy Inv.

On March 5th, Sheila's Shirt Shop purchased 50 shirts on account for \$8 each from Saipan Co. (Inv#2359). Sheila's also issued check #521 for \$100 to pay shipping and customs.

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/5	Purchases	400	
	A/P		400
	(Invoice #2359)		
3/5	Freight-In	100	
	Cash		100
	(Ck #521)		

Purchase Returns & Allowances - Periodic

- Reduction in cost of inventory due to returned or defective merchandise.

On 3/15 Sheila's Shirts buys 100 shirts for \$8 each on account from Saipan (Inv# 2460). On 3/16 it returns 20 shirts because they're torn.

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/15	Purchases	800	
	A/P		800
	(Saipan #2460)		
3/16	A/P	160	
	Purchase Returns & Allow		160
	(Returned 20 torn shirts)		

Purchase Discounts - Periodic

- On 5/1 you purchase \$1,000 of inventory from with terms of 2/10 n/30.

Gross Method

Purchase

Purchases	\$1,000
A/P	\$1,000

Pay in Discount Period

A/P	\$1,000
Purch. Discount	\$20
Cash	\$980

Pay After Discount Period

A/P	\$1,000
Cash	\$1,000

Net Method

Purchase

Purchases	\$980
A/P	\$980

Pay in Discount Period

A/P	\$980
Cash	\$980

Pay After Discount Period

A/P	\$980
Purch Disc. Lost	\$20
Cash	\$1,000

Periodic Method – Sell Inv.

On March 10th, Sheila's Shirt Shop sells 25 shirts on account for \$20 each to Betty's Boutique (Inv#15). The shirts cost \$10 each.

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	(Invoice #15- Betty's)		

NO COGS or Inventory

Sales Returns & Allowances – Periodic

On March 10th, Sheila's Shirt Shop sells 25 shirts on account for \$20 each to Betty's Boutique (Inv#15). The shirts cost \$10 each. **On 3/18 Betty's returns 10 shirts.**

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	(Sold 25 shirts to Betty's)		
3/18	Sales Returns & Allowances	200	
	A/R		200
	(10 shirts returned – Betty's)		

NO COGS or Inventory

Sales Discounts - Periodic

On March 10th, Sheila's Shirt Shop sells 25 shirts for \$20 each to Betty's Boutique with terms 2/10 , n/30. The shirts cost \$10 each. On 3/18 Betty's returns 10 shirts and on **3/19 Sheila is paid in full.**

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	A/R	500	
	Sales		500
	<i>(Sold 25 shirts to Betty's)</i>		
3/18	Sales Returns & Allowances	200	
	A/R		200
	<i>(10 shirts returned – Betty's)</i>		
3/19	Cash	294	
	Sales Discounts	6	
	A/R		300
	<i>(Betty's payment)</i>		

Closing Entries – Periodic Method

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
12/31	Ending Inventory	xxx	
	Purchase Returns	xxx	
	Purchase Allowances	xxx	
	Purchase Discounts	xxx	
	Cost of Goods Sold (plug)	xxx	
	Purchases		xxx
	Freight-In		xxx
	Beginning Inventory		xxx
	(Closing entries for period)		

Summary of Journal Entries

Perpetual

- Record COGS when record sales
- Record purchases, freight in, & purchase returns and allowances in **merchandise inventory**
- Sales Returns & Allowances entry includes COGS & Merchandise Inventory

Periodic

- Record COGS at end of period
- Record purchases, freight in, & purchase returns and allowances in separate accounts
- Sales Returns & Allowances entry doesn't include COGS or Merchandise Inventory

Inventory Costing Methods

Chapters 4-6

Simplified Cost of Goods Sold Formula

Cost of goods sold:

Beginning inventory	\$ 20
+ Net Purchases	<u>100</u>
= Cost of goods available for sale	120
- Ending inventory	<u>(30)</u>
= Cost of goods sold	\$ 90

What Value Do You Assign Inventory & COGS If You Bought Inventory at Different Prices?

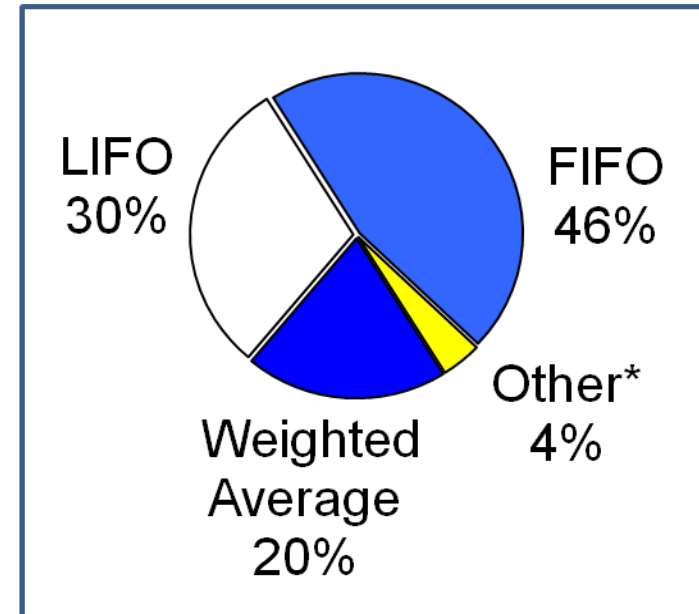
Beg. Inventory	10 units	@	\$10 /unit	=	\$100
Purchase #1	20 units	@	\$13 /unit	=	\$260
Purchase #2	<u>24 units</u>	@	\$17 /unit	=	<u>\$408</u>
Goods Available	54 units				\$768
Cost of Goods Sold	50 units	@	? /unit	=	?
Ending Inventory	4 units	@	? /unit	=	?

Value depends upon cost flow method!!

Cost Flow Methods Allowed per GAAP (and Frequency of Usage)

- Specific identification
- Weighted-average
- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)

Must disclose method used in notes to financial statements



*includes specific identification

Demonstration Problem

Kip's Cap Company

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10 x	\$10 =	\$100
3/4	Purchase	20 x	\$13 =	\$260
3/8	Sale	22 x	\$20 =	\$440
3/18	Purchase	24 x	\$17 =	\$408
3/25	Sale	28 x	\$25 =	\$700

Assume ending inventory includes 2 units from March 4th purchase and 2 units from the March 18th purchase.

Weighted-Average (Average Cost) Method

- COGS & inventory values based on weighted average
- Smooths out the price changes

$$\frac{\text{cost of goods available for sale}}{\text{number of units available for sale}}$$

Weighted Average

<u>Date</u>	<u>Activity</u>	<u>Units</u>		<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x	\$10	= \$100
3/4	Purchase	20	x	\$13	= \$260
3/8	Sale	22	x	\$20	= \$440
3/18	Purchase	24	x	\$17	= \$408
3/25	Sale	28	x	\$25	= \$700

	Date	Cost of Goods Sold	Inventory Balance	Ave.
Beg. Inv.	3/1		10 x \$10 = \$100	
Purchase	3/4		<u>20</u> x \$13 = <u>\$260</u>	
			30	\$360
Sale	3/8	22 x \$12 = \$264	8 x \$12 = \$96	\$12.00 a
Purchase	3/18		<u>24</u> x \$17 = <u>\$408</u>	
			32	\$504
Sale	3/25	28 x \$15.75 = \$441	4 x \$15.75 = \$63	\$15.75 b
		Total COGS \$705	End. Inv. \$63	

a) $\$360 / 30 \text{ units} = \12 average cost per unit

b) $\$504 / 32 \text{ units} = \15.75 average cost per unit

FIFO – first units in first out

(Typically reflects physical flow of inventory)

<u>Date</u>	<u>Activity</u>	<u>Units</u>		<u>\$/Unit</u>		<u>Total</u>
3/1	Beg. Inventory	10	x	\$10	=	\$100
3/4	Purchase	20	x	\$13	=	\$260
3/8	Sale	22	x	\$20	=	\$440
3/18	Purchase	24	x	\$17	=	\$408
3/25	Sale	28	x	\$25	=	\$700

	Date	Cost of Goods Sold				Inventory Balance				
Beg. Inv.	3/1					10	x	\$10	=	\$100
Purchase	3/4					20	x	\$13	=	\$260
						30				\$360
Sale	3/8	10	x	\$10	=					
		12	x	\$13	=					
		22								\$256
Purchase	3/18					8	x	\$13	=	\$104
						24	x	\$17	=	\$408
						32				\$512
Sale	3/25	8	x	\$13	=					
		20	x	\$17	=					
		28								\$444
						4	x	\$17	=	\$68
		Total COGS								\$700
						End. Inv.				\$68

LIFO-last units in first out

(If inventory costs rising, more accurately reflects performance)

<u>Date</u>	<u>Activity</u>	<u>Units</u>		<u>\$/Unit</u>		<u>Total</u>
3/1	Beg. Inventory	10	x	\$10	=	\$100
3/4	Purchase	20	x	\$13	=	\$260
3/8	Sale	22	x	\$20	=	\$440
3/18	Purchase	24	x	\$17	=	\$408
3/25	Sale	28	x	\$25	=	\$700

	Date	Cost of Goods Sold				Inventory Balance					
Beg. Inv.	3/1					10	x	\$10	=	\$100	
Purchase	3/4					20	x	\$13	=	\$260	
						30				\$360	
Sale	3/8	20	x	\$13	=	\$260					
		2	x	\$10	=	\$20					
		22				\$280					
Purchase	3/18					8	x	\$10	=	\$80	
						24	x	\$17	=	\$408	
						32				\$488	
Sale	3/25	24	x	\$17	=	\$408					
		4	x	\$10	=	\$40					
		28				\$448	4	x	\$10	=	\$40
		Total COGS				\$728	End. Inv.			\$40	

Periodic Method

- Separate purchases from sales
- Calculate cost of goods available (COGA)
- Calculate LIFO, FIFO, Weighted Average without regard to date of sale.

Weighted Average- Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	28	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x	\$10	= \$100
3/4	Purchase	20	x	\$13	= \$260
3/18	Purchase	24	x	\$17	= \$408
		<u>54</u>			<u>\$768</u>
	Less: Sales	<u>-50</u>			
	End. Inventory	<u>4</u>			

$$\$768 / 54 = \$14.22$$

COGA		\$768.00
Less End. Inv.	4 x \$14.22 =	<u>- 56.88</u>
Cost of Goods Sold		\$711.12

First In First Out (FIFO) - Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	28	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x \$10	=	\$100
3/4	Purchase	20	x \$13	=	\$260
3/18	Purchase	24	x \$17	=	\$408
		<u>54</u>			<u>\$768</u>
	Less: Sales	<u>-50</u>			
	End. Inventory	<u>4</u>			

COGA					\$768
Less End. Inv.	4	x \$17	=		<u>- 68</u>
Cost of Goods Sold					\$700

Last In First Out (LIFO) - Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	28	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x \$10	=	\$100
3/4	Purchase	20	x \$13	=	\$260
3/18	Purchase	24	x \$17	=	\$408
		<u>54</u>			<u>\$768</u>
	Less: Sales	<u>-50</u>			
	End. Inventory	4			

COGA					\$768
Less End. Inv.	4	x \$10	=		<u>-40</u>
Cost of Goods Sold					\$728

LCM – Chapter 7

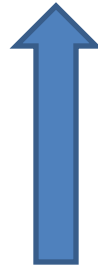
The Lower of Cost or Market

- If the value of inventory is lower than its cost, the inventory is reduced to its current market value.
 - Temporary declines (seasonal) ignored
 - Permanent declines treated as loss
 - If amount insignificant classified as COGS
- Departure from **cost principle** based on **conservatism**

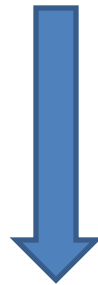
<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
3/10	Loss on Inventory Writedown	500	
	Inventory		500
	<i>(LCM)</i>		
	<i>or . . .</i>		
3/10	Loss on Inventory Writedown	500	
	Allowance to Reduce Inventory		500
	<i>(Lower of cost or market)</i>		
4/10	Allowance to Reduce Inventory	500	
	Loss Recovery		500
	<i>(Subsequent price recovery)</i>		

“Market” in LCM

Ceiling (net realizable value) = Selling Price – Disposal Costs



Current Replacement Cost
(amount listed in vendor catalogues)



Floor = Ceiling – Normal Profit

- Disposal costs include: sales commissions, shipping or packaging costs.
- Normal profit is based on gross profit

**Determine market value for each item.
(Hint: you first need to find the ceiling and floor)**

	Original Cost	Replace Cost	Selling Price	Disposal Cost*	Ceiling (sell - disp)	Markup**	Floor (Ceil-mark)	Market
<u>Indian</u>								
Garam Masala	50	45	70	5	65	10	55	55
Amchur Powder	45	60	65	6	59	5	54	59
Curry	75	65	80	7	73	10	63	65
<u>Mexican</u>								
Cumin	60	50	65	6	59	6	53	53
CA Chile Pepper	70	64	79	6	73	10	63	64
NM Chile Pepper	63	70	75	6	69	8	61	69

***Disposal Costs = Sales commissions, shipping or packaging costs.**

****Markup based on gross profit**

Lower of Cost or Market

Can be applied:

- Item by item
- Group by group (by class)
- In total (total inventory)

<u>Indian</u>	<u>Cost</u>	<u>Market</u>	<u>Item</u>	<u>Group</u>	<u>Total</u>
Garam Masala	50	55	50		
Amchur Powder	45	59	45		
Curry	<u>75</u>	<u>65</u>	65		
	170	179		170	
 <u>Mexican</u>					
Cumin	60	53	53		
CA Chile Pepper	70	64	64		
NM Chile Pepper	<u>63</u>	<u>69</u>	<u>63</u>		
	193	183		183	
	363	362	337	353	362

On 12/31/10, Furniture Land had the following data for its ending inventory. Determine the market value for each item. (Hint: you first need to find the ceiling and floor)

	<u>Original Cost</u>	<u>Replace Cost</u>	<u>Selling Price</u>	<u>Disposal Cost</u>	<u>Estimated Profit</u>
<u>Residential</u>					
Lazy Boy Chairs	250	255	300	15	100
Sofas	600	590	650	70	50
Love Seats	400	380	450	15	90
<u>Office</u>					
Desks	800	700	1200	30	300
Bookcases	80	75	100	10	20
Tables	300	325	400	85	80

Furnitureland had the following data for its ending inventory. Determine the market value for each item.

	Original Cost	Replace Cost	Selling Price	Disposal Cost*	Ceiling (sell - disp)	Estimated Profit**	Floor (Ceil-mark)	Market
<u>Residential</u>								
Lazy Boys	250	255	300	15	285	100	185	255
Sofas	600	590	650	70	580	50	530	580
Love Seats	400	380	450	15	435	90	345	380
<u>Office</u>								
Desks	800	700	1,200	30	1,170	300	870	870
Bookcases	80	75	100	10	90	20	70	75
Tables	300	325	400	85	315	80	235	315

***Disposal Costs = Sales commissions, shipping or packaging costs.**

****Markup based on gross profit**

Given the following information calculate the lower of cost or market by item, class and in total

	<u>Original Cost</u>	<u>Market</u>
<u>Residential</u>		
Lazy Boy Chairs	240	265
Sofas	575	600
Love Seats	410	375
<u>Office</u>		
Desks	780	750
Bookcases	95	85
Tables	315	305

Lower of Cost or Market

<u>Residential</u>	<u>Cost</u>	<u>Market</u>	<u>Item</u>	<u>Group</u>	<u>Total</u>
Lazy Boy	240	265	240		
Sofas	575	600	575		
Love Seats	<u>410</u>	<u>375</u>	375		
	1,225	1,240		1,225	
<u>Office</u>					
Desks	780	750	750		
Bookcases	95	85	85		
Tables	<u>315</u>	<u>305</u>	<u>305</u>		
	1,190	1,140		1,140	
	2,415	2,380	2,330	2,365	2,380

Purchase Commitments

(contract that obligates buyer to specified price on specified date)

<u>Date</u>	<u>Account</u>	<u>Dr.</u>	<u>Cr.</u>
5/10	Estimated Loss on Purchase Commit	500	
	Estimated Liability on Purch. Comm.		500
	<i>(Drop in Market Price)</i>		
12/3	Inventory	6,000	
	Estimated Liability on Purch Comm.	500	
	Cash		6,500
	<i>(Execute Purchase Contract)</i>		