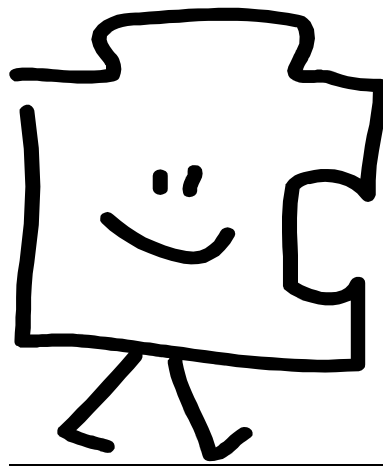


*2013 UIL Capital Conference*

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# The Key to Solving UIL Accounting Puzzle Problems



by:

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## Puzzle Advice

1. Contestants must have a firm grasp of the underlying theory of the entire accounting cycle. Use textbooks of BOTH publishers to cover all the UIL Accounting Concepts.
2. Guide students to analyze puzzle problems rather than memorizing “tricks.”
3. Encourage students to
  - 1) familiarize themselves with the problem formats that are repeating;
  - 2) study examples of “shortcuts” and practice the ones that make sense to them;
  - 3) use analytical skills to tackle puzzle problems they have never seen before.
4. Absolute **BEST** advice: **Write Down What You Know**

### Accounting Equation Over Time

	A	=	L	+	OE	
Beg.						Beg.
During {						Owner Invest.
						<Owner Draw>
						NI or <NL>
End						End

Practice using an exact format so often, you no longer waste time writing ANY headings or descriptors. Use circles to indicate “unknowns.” The circles will help you SEE where you may start to solve. (Look for a row or column that has only ONE unknown.)

### From 2011-A, Group 3

	Gold Co.
<b>December 31, 2009:</b>	
Assets	27,830
Liabilities	5,690
<b>December 31, 2010:</b>	
Assets	43,819
Liabilities	8,337
<b>During 2010:</b>	
Owner Investments	15,000
Net Income (Loss)	?
Owner Withdrawals	3,000

27,830	5,690	<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 20px; margin: 0 auto;"></div> 15,000 <3,000>
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 20px; margin: 0 auto;"></div>	<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 20px; margin: 0 auto;"></div>	<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 20px; margin: 0 auto;"></div>
<hr style="width: 50%; margin: 0 auto;"/> 43,819	<hr style="width: 50%; margin: 0 auto;"/> 8,337	<hr style="width: 50%; margin: 0 auto;"/> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 20px; margin: 0 auto;"></div>

### Detailed Solutions:

- Step 1 Solve Beg OE:  $27,830 - 5,690 = 22,140$
- Step 2 Solve End OE:  $43,819 - 8,337 = 35,482$
- Step 3 NI or NL (we don't know which one yet)
 

$22,140 + 15,000 - 3,000$  STOP...look at calculator screen, subtotal is 34,140. This is less than the End OE \$35,482. So it will take Net Income to get us there.
- Step 4 34,140 is still in calculator. Subtract 35,482. So \$1,342 is net income.

Using the “Accounting Equation Over Time” can help with a variety of problem formats. The following problem is a narrative. (Like a math word problem.)

**2011 D1, Group 3:**

**At the beginning of the fiscal year 2010, Ross Company’s assets were \$18,495. During the year, assets increased by \$23,195 and liabilities increased by \$2,170. At the end of the year, liabilities totaled \$5,750. The owner made withdrawals of \$2,500, and invested \$25,000 in the business during the year.**

**For questions 10 through 12, write the correct amount on your answer sheet. (A net loss must be indicated on your answer sheet either in brackets or in parenthesis.)**

10. What was the total owner’s equity at the beginning of the year?  
 11. What was the total owner’s equity at the end of the year?  
 12. What was the amount of net income or net loss for the year?

18,495	<input type="text"/>	<input type="text"/>
		25,000
+23,195	+2,170	<2,500>
		<input type="text"/>
<hr/>	<hr/>	<hr/>
<input type="text"/>	5,750	<input type="text"/>

Step 1 Solve End A:  $18,495 + 23,195 = 41,690$

Step 2 Solve Beg L:  $5,750 - 2,170 = 3,580$

Step 3 Solve Beg OE:  $18,495 - 3,580 = 14,915$

Step 4 Solve End OE:  $41,690 - 5,750 = 35,940$

Step 5 NI or NL (we don’t know which one yet)  
 $14,915 + 25,000 - 2,500$  STOP, look at calculator subtotal 37,415. This is MORE than End OE \$35,940. So it will take a Net Loss to get us there.

Step 6 37,415 is still in calculator. Subtract 35,940. So \$1,475 is Net Loss.

Now expand the theory behind the “Accounting Equation Over Time” to include individual accounts within Assets, Liabilities, and Owner’s Equity.

**From District 2012-D2, Group 2**

**A business with a fiscal year end of Dec 31 has the following normal account balances and other information for the dates given in the year 2011. The company prepares monthly adjusting entries, but closes the accounts only at the end of the fiscal year. Therefore, the date Dec. 31 refers to balances after closing entries are posted.**

<b>Cash, Jan 1</b>	<b>8,745</b>	<b>Accounts Payable, Jan 1</b>	<b>5,850</b>
<b>Cash, Dec 31</b>	<b>16,215</b>	<b>Accounts Payable, Dec 31</b>	<b>....?....</b>
<b>Accounts Receivable, Jan 1</b>	<b>3,520</b>	<b>Jake Sims, Capital, Jan 1</b>	<b>....?....</b>
<b>Accounts Receivable, Dec 31</b>	<b>4,710</b>	<b>Jake Sims, Capital, Dec 31</b>	<b>....?....</b>
<b>Merchandise Inventory, Jan 1</b>	<b>15,780</b>		
<b>Merchandise Inventory, Dec 31</b>	<b>18,410</b>	<b>Net Loss, Jan 1 – Dec 31</b>	<b>4,078</b>
<b>Owner withdrew cash for personal use on May 23, 2011</b>			<b>8,000</b>
<b>Owner made additional investment in his business on November 14, 2011</b>			<b>25,000</b>

**For questions 10 through 13, write the identifying letter of the best response on your answer sheet.**

- 10. Total owner’s equity on January 1, 2011 was  
 A. \$22,195    B. \$35,117    C. \$39,195    D. \$43,273    E. \$47,195
- 11. Total owner’s equity on December 31, 2011 was  
 A. \$22,195    B. \$33,485    C. \$35,117    D. \$39,195    E. \$43,273
- 12. By what amount did the Accounts Payable account increase or decrease from January 1, 2011 to December 31, 2011?  
 A. \$1,190 increase    C. \$1,632 increase    E. \$1,912 increase  
 B. \$1,190 decrease    D. \$1,632 decrease    F. \$1,912 decrease

28,045	5,850	<input type="text"/>
		25,000
	<input type="text"/>	<8,000>
		<4,078>
<hr/>	<hr/>	<hr/>
39,335	<input type="text"/>	<input type="text"/>

- Step 1 Solve Beg A:  $8,745 + 3,520 + 15,780 = 28,045$
- Step 2 Solve End A:  $16,215 + 4,710 + 18,410 = 39,335$
- Step 3 Solve Beg OE:  $28,045 - 5,850 = 22,195$
- Step 4 Solve End OE:  $22,195 + 25,000 - 8,000 - 4,078 = 35,117$
- Step 5 Solve End L:  $39,335 - 35,117 = 4,218$
- Step 6 Solve for change in liabilities:  $5,850 - 4,218 = 1,632$  decrease

One of the Most Frequent Email Messages I Receive:  
There is Not Enough Info to Solve for Ending Inventory!

**2011 D1, Group 4**

Selected information from a work sheet is shown below. For questions 13 through 15, write the correct amount on your answer sheet.

ACCOUNT TITLE	TRIAL BALANCE		ADJUSTED TRIAL BALANCE	
	DEBIT	CREDIT	DEBIT	CREDIT
Prepaid Insurance	<b>Q#13</b>		688	
Supplies	7,286		1,395	
Merchandise Inventory	42,890		<b>Q#14</b>	
Income Summary			1,370	
Insurance Expense			4,164	
Supplies Expense			<b>Q#15</b>	

Use the Trial Balance CREDIT column as space to draw a vertical line to plot adjustments (see below).

Look at the Adjusted Trial Balance Debit column on the line for Income Summary \$1,370. What AJE was plotted to achieve this adjusted balance? (work backwards)

	Tr.Bal	AJE's		Adjusted Trial Balance	
		DR	CR	Debit	Credit
Merchandise Inventory	42,890		1,370	<b>Q#14</b>	
Income Summary		1,370		1,370	

Q#14 Ending Inventory = BI – AJE credit or  $42,890 - 1,370 = 41,520$

How to solve for Q#13. Look at the Adjusted Trial Balance Debit column on the line for Insurance Expense \$4,164. What AJE was plotted to achieve this adjusted balance?

	Tr.Bal	AJE's		Adjusted Trial Balance	
		DR	CR	Debit	Credit
Prepaid Insurance	<b>Q#13</b>		4,164	688	
Insurance Expense		4,164		4,164	

Q#13 Trial Bal Prepaid Insurance = End Bal Prep Ins + AJE credit or  $688 + 4,164 = 4,852$

## Analyzing Insurance Premiums

### 2006 State, Group 14

This is a summary of the given information pertaining to insurance:

1. Prepaid Insurance in the Unadjusted Trial Balance for the Year Ended 12-31-05 is \$5,040
2. One-year insurance policy purchased August 1, 2004 \$2,880
3. One-year insurance policy purchased August 1, 2005 \$3,360

August 1, 2004: \$2,880 / 12 months = \$240 per month

- 5 months in 2004 (Aug-Dec 2004)  $\$240 \times 5 = \$1,200$
- 7 months in 2005 (Jan-July 2005)  $\$240 \times 7 = \$1,680$

August 1, 2005: \$3,360 / 12 months = \$280 per month

- 5 months in 2005 (Aug-Dec 2005)  $\$280 \times 5 = \$1,400$
- 7 months in 2006 (Jan-July 2006)  $\$280 \times 7 = \$1,960$

Here is a helpful hint. Use the following "spread sheet approach" to write down what you know.

		Expense in the Year...		
		2004	2005	2006
Pmt 8-1-04	\$2,880	1,200	1,680	
Pmt 8-1-05	\$3,360		1,400	1,960
			3,080	

Prepaid Insurance			
Jan 1, 2005		1,680	←
Purchased 8-1-05	→	3,360	
bal. before adjustment and is on Trial Balance		5,040	3,080 amount expired in 2005 (expense adjustment)
Balance after adjustment (December 31, 2005)		1,960	← This will become expense in 2006

### Cost of Merchandise Sold Section of the Income Statement

1. Students must KNOW the formula including Transportation In with the subtotal called Cost of Delivered Merchandise.
2. Be able to solve a puzzle from:
  - a. top to bottom
  - b. bottom to top
  - c. from the middle in either direction!
3. Given information will not always be in formula order.
4. Questions will not always be in formula order.

**2006 D2, Group 7**

Use the following information (arranged in alphabetical order) to answer questions 27 through 34. Write the correct amount on your answer sheet. All accounts have normal balances.

Cost of delivered merchandise	74,207
Cost of merchandise available for sale	100,435
Gross profit	46,680
Net purchases	68,625
Net sales	116,700
Purchases	?
Purchases discounts	?
Purchases returns and allowances	3,105
Sales	124,860
Sales discounts	?
Sales returns and allowances	4,290
Transportation in	3,605

27. What is the amount of beginning inventory?
28. What is the amount of ending inventory?
29. What is the amount of purchases?
30. What is the amount of purchases discounts?
31. What is the amount of sales discounts?
32. What is the amount of cost of merchandise sold?
33. What is the amount of net income or loss if expenses were \$49,325?
34. What is the amount of net income or loss if expenses were \$40,255?

Sales		124,860	
SD			
SRA		4,290	
Net S			116,700
BI			
Pur			
TI	3,605		
Del	74,207		
PD			
PRA	3,105		
Net P		68,625	
COMAS		100,435	
EI			
COMS			
GP			46,680

**Solving Strategies:**

1. Write down what you know. (Use very short abbreviations for identifiers. Use the exact same columnar format for all COMS problems, and practice it this way.)
2. There are a variety of starting places. But don't let the question order rule your strategy. You can see you have to solve it all. So YOU be in control of the order you answer the questions.
3. With enough practice, you may not need to format the entire COMS section in writing. You will be able to "see it" in your head. But when in doubt, write it out. Under pressure, writing it all out may save you time in the long run.

**Possible Solving Steps:**

1. COMS=Net S less GP 116,700 - 46,680 = 70,020 Q32
2. EI=COMAS - COMS 100,435 - 70,020 = 30,415 Q28
3. BI=COMAS - Net P 100,435 - 68,625 = 31,810 Q27
4. Pur=Del - TI 74,207 - 3,605 = 70,602 Q29
5. PD=Del - PRA - Net P 74,207 - 3,105 - 68,625 = 2,477 Q30
6. SD=Sales - SRA - Net S 124,860 - 4,290 - 116,700 = 3,870 Q31
7. Q33 GP - Exp = NI<NL> 46,680 - 49,325 = <2,645> NL
8. Q34 GP - Exp = NI<NL> 46,680 - 40,255 = 6,425 NI

**Multiple-Column Multiple Choice**

Treat each column as a separate multiple choice question. Use the “circle technique.” In each column, circle the correct answer for that column every time it is listed. Once all columns have been addressed, look for the common bond (or common thread) across.

1. Credits are used to increase or decrease the following accounts:

- |    | <u>Revenues</u> | <u>Expenses</u> | <u>Owner's Withdrawals</u> |
|----|-----------------|-----------------|----------------------------|
| A. | increase        | increase        | increase                   |
| B. | decrease        | decrease        | decrease                   |
| C. | increase        | decrease        | increase                   |
| D. | increase        | decrease        | decrease                   |
- (choice with common bond)

**Inventory**

This is provided as a teaching tool to give a visual aid for how units are divided between COMS and EI for two methods of assigning cost (FIFO & LIFO). It is NOT recommended as a contest problem solving step as it takes too much precious time. Visual learners will appreciate this picture.

Available	831
Sold	749
Ending Inv.	82

Shaded = Given information

		FIFO		Number of Units	LIFO		Cost per Unit	FIFO	LIFO
		EI	COMS		EI	COMS			
1-1-05	B I		20	20	20		3.00	COMS	EI
Feb	Purchase		20	20	20		3.25		
Mar	Purchase		140	140	42	98	3.50		
May	Purchase		76	76		76	3.65		
Jun	Purchase		100	100		100	3.75		
Aug	Purchase		205	205		205	4.00		
Sept	Purchase		120	120		120	4.00		
Oct	Purchase	10	68	78		78	4.10	EI	COMS
Nov	Purchase	40		40		40	6.00		
Dec	Purchase	32		32		32	6.15		
		82	749	831	82	749			

831

831

**FIFO Ending Inventory**

Units	Cost per Unit	Extended Calculation for EI
10	4.10	41.00
40	6.00	240.00
32	6.15	196.80
82		477.80

**LIFO Ending Inventory**

Units	Cost per Unit	Extended Calculation for EI
20	3.00	60.00
20	3.25	65.00
42	3.50	147.00
82		272.00

What if the test question ask for COMS for each method? Which calculation is faster...ending inventory (82 units) or COMS (749 units)?

Suggestion: Calculate EI, then subtract from COMAS to reach COMS.



Encourage students to know where the numbers on a worksheet come from, what they represent, and where they would be located in the general ledger (T Account). Use margin space and account title space to “write down what you know.”

Office Supplies	
Jan 1 beg. bal	425
bought during year	1,890
bal. before adjustment and is on Trial Balance	
Balance after adjustment (December 31)	570

**Given Information:**

- Office Supplies Inventory on 12-31-10 was \$425 and was given in the “Facts.”
- Office Supplies Inventory on 12-31-11 was on the worksheet in the Balance Sheet Debit column.

**Questions Included:**

- What amount of office supplies was purchased during the year?
- What is the amount of office supplies expense?

Morrow's Farm & Ranch Supply										
Worksheet										
For the Year Ended December 31, 2011										
Beg. Bal. Jan. 1	Account Title	During Year	Trial Balance		Adjustments		Income Statement		Balance Sheet	
			Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
	Cash in Bank		8,257						8,257	
425	Office Supplies		1,890						570	
	Merchandise Inventory		36,425						34,280	
	Accounts Payable			12,742						12,742
	Seth Morrow, Capital									
	Seth Morrow, Drawing		18,000							
	Income Summary									
	Sales									
	Purchases		46,979							
	Office Supplies Expense									
	Rent Expense		7,800							
	Utilities Expense		4,979							

Meg's Organics										
Work Sheet										
For the Year Ended December 31, 2009										
Account Title	Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
Cash in Bank	8,920				8,920					
Accounts Receivable	5,680				5,680					
Merchandise Inventory	32,765			2,585	30,180					
Supplies	9,916			8,631	1,285					
Prepaid Insurance	6,012			4,432	1,580					
Equipment	42,500				42,500					
Accounts Payable		29,416				29,416				
Sales Tax Payable		1,273				1,273				
Meg Chopra, Capital		65,366				65,366				
Meg Chopra, Drawing	15,000				15,000					
<b>Income Summary</b>			2,585		2,585					
<b>Sales</b>		172,625				172,625				
Sales Discounts	2,480				2,480					
Sales Ret. & Allow.	3,795				3,795					
Purchases	95,033				95,033					
Purchases Discounts		6,230				6,230				
Purchases Ret. & Allow.		3,845				3,845				
Transportation In	8,940				8,940					
Salary Expense	25,000				25,000					
Payroll Tax Expense	2,212				2,212					
Advertising Expense	3,462				3,462					
Rent Expense	7,500				7,500					
Utilities Expense	9,540				9,540					
<i>Supplies Expense</i>			8,631		8,631					
<i>Insurance Expense</i>			4,432		4,432					
								173,610	182,700	105,145
										96,055

Contestants can save time by NOT extending to the Income Statement and Balance Sheet columns. Train the brain to KNOW the contents of each column's subtotal before Net Income/Net Loss is calculated. Use the calculator instead of the pencil to sort the adjusted account balances.

Account Title	Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
							173,610	182,700	105,145	96,055

Are you able to look at the subtotals and immediately determine if we have a net income or a net loss?

1. Revenue has a normal credit balance.
2. Revenue belongs on the Income Statement, therefore appears within the Income Statement Credit subtotal.
3. Expense has a normal debit balance.
4. Expense belongs on the Income Statement, therefore appears within the Income Statement Debit subtotal.
5. Compare the subtotal of the Income Statement Debit column to the subtotal of the Income Statement Credit column.
6. If the Credit is larger than the Debit, we have Net Income.
7. If the Debit is larger than the Credit, we have Net Loss.

Do you know **WHY** we write the net income amount in the Income Statement Debit column and the Balance Sheet Credit column? (Alternatively, why do we write the Net Loss amount in the Income Statement Credit column and the Balance Sheet Debit column?)

There is a more important reason than “it makes all the grand totals come out nice and neat.”

Account Title	Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
							173,610	182,700	105,145	96,055
Net Income							9,090			9,090
							182,700	182,700	105,145	105,145

1. What does Net Income do to Capital? Answer: It increases it.
2. How do we show an increase to the Capital account? Answer: We credit it.
3. Therefore, write the Net Income amount in the Balance Sheet Credit column, and then write the Net Income amount in the Income Statement column that is the opposite of where you wrote it in the Balance Sheet column (the Income Statement Debit column).
4. (Alternatively: Net Loss decreases Capital. To decrease Capital we debit it. Therefore, write Net Loss amount in the Balance Sheet Debit column, and also write Net Loss amount in the Income Statement Credit column.)