Last revised: November 19, 2012

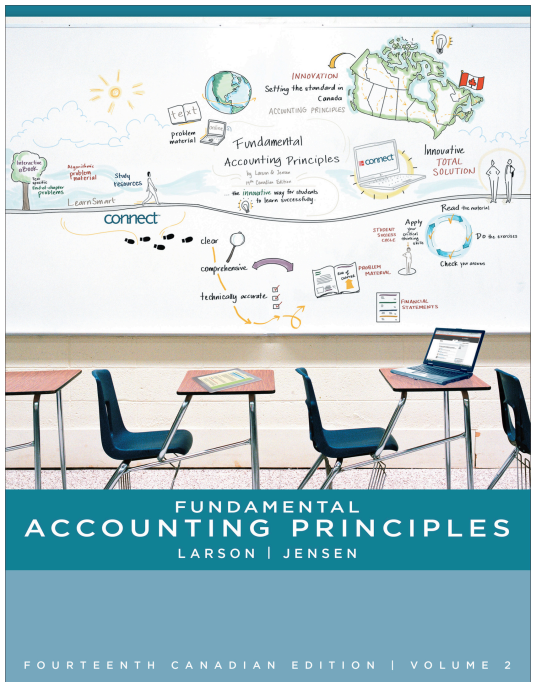
SOLUTIONS MANUAL

to accompany

Fundamental Accounting Principles

14th Canadian Edition

by Larson/Jensen



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Chapter 10 Property, Plant and Equipment and Intangibles

Chapter Opening Critical Thinking Challenge Questions*

How do PPE assets generate sales? The article says that property, plant and equipment (PPE) are an "asset group on the balance sheet". What other asset groups are there?

- **PPE assets, such as manufacturing equipment and the building in which the equipment is housed, are responsible for producing the goods a company sells to "generate sales". Other asset groups on the balance sheet are current assets, long-term investments, and intangible assets.**

***The Chapter 10 Critical Thinking Challenge questions are asked at the beginning of this chapter. Students are reminded at the conclusion of the chapter to refer to the Critical Thinking Challenge questions at the beginning of the chapter. The solutions to the Critical Thinking Challenge questions are available here in the Solutions Manual and accessible to students at Connect.**

Concept Review Questions

1. **A property, plant and equipment asset is long-lived in that it has a service life of longer than one accounting period; it is used in the production or sale of products or services.**
2. **Land held for future expansion is classified as a long-term investment. It is not a property, plant and equipment asset because it is not being used in the production or sale of other assets or services.**
3. **The cost of a property, plant and equipment asset includes all normal, reasonable, and necessary costs of getting the asset in place and ready to use.**
4. **Land is an asset with an unlimited life and, therefore, is not subject to depreciation. Land improvements have limited lives and are subject to depreciation.**
5. **No. The Accumulated Depreciation, Machinery account is a contra asset account with a credit balance that does not represent cash or any other funds. Funds available for buying machinery would be shown on the balance sheet as liquid assets with debit balances. The balance of the Accumulated Depreciation, Machinery account shows the portion of the machinery's original cost that has been charged to depreciation expense, and gives some indication of how soon the asset will need to be replaced.**
6. **Revenue expenditures, such as repairs, are made to keep a plant and equipment asset in normal, good operating condition, and should be charged to expense of the current period. Capital expenditures are made to extend the service potential or the life of a plant and equipment asset beyond the original estimated life and are charged to the plant and equipment asset account.**
7. **Because the $75 cost of the plant and equipment asset is not likely to be material to the users of the financial statements, the materiality principle justifies charging it to expense.**
8. **Danier Leather did not report any gains or losses on disposal of assets for its year ended June 25, 2011. High Liner Foods reported a "loss on disposal of assets" of $271,000 for its December 31, 2011 year end. Shoppers Drug Mart showed a $2,015,000 "loss on sale or disposal of property and equipment, including impairments" for its December 31, 2011 year end. WestJet reported a "loss on disposal of property and equipment of $54,000 for its December 31, 2011 year end.**
9. **A company might sell or exchange an asset when it reaches the end of its useful life, or if it becomes inadequate or obsolete, or because the company has changed its business plans. An asset may also be damaged or destroyed by fire or some other accident.**
10. **An intangible asset has no physical existence. Its value comes from the unique legal and contractual rights held by its owner.**
11. **Intangible assets are generally recorded at their cost and amortized over their predicted useful life in a manner that is similar to what is used to depreciate plant and equipment assets.**
12. **High Liner Foods reported $103,109,000 as Intangible assets at December 31, 2011.**
13. **A business has goodwill when the price paid for a company being purchased exceeds the fair market value of this company's net assets (assets minus liabilities) if purchased separately.**
14. **Shoppers Drug Mart reported $2,499,722,000 as Goodwill at December 31, 2011.**

QUICK STUDY

Quick Study 10-1 (5 minutes)

$18,000 + $180,000 + $3,000 + $600 = $201,600

Quick Study 10-2 (10 minutes)

1. (a) R
(b) C
(c) R
(d) C

2.

(a)			
Mar. 15	**Repairs Expense**	**120**	
	Accounts Payable		**120**
	To record repairs.		
(b)			
Mar. 15	**Refrigeration Equipment**	**40,000**	
	Accounts Payable		**40,000**
	To record capital expenditure.		
(c)			
Mar. 15	**Repairs Expense**	**200**	
	Accounts Payable		**200**
	To record repairs.		
(d)			
Mar. 15	**Office Building**	**175,000**	
	Accounts Payable		**175,000**
	To record capital expenditure.		

Quick Study 10-3 (10 minutes)

PPE Item	*(a)* Appraised Values	*(b)* Ratio of Individual Appraised Value to Total Appraised Value *(a) ÷ Total Appraised Value*	*(c)* Cost Allocation *(b) x Total Actual Cost*
Land.....	$ 320,000	320,000 ÷ 500,000 = .64 or 64%	$ 345,600[1]
Building.....	180,000	180,000 ÷ 500,000 = .36 or 36%	194,400[2]
Totals.....	$ 500,000		$ 540,000

1. *64% x 540,000 = 345,600*
2. *36% x 540,000 = 194,400*

2014				
Apr. 14	Land.....	345,600		
	Building.....	194,400		
	Cash		85,000	
	Notes Payable.....		455,000	
	To record purchase of land and building.			

Quick Study 10-4 (10 minutes)

TechCom
Partial Balance Sheet
October 31, 2014

Assets			
Current assets:			
Cash		$ 9,000	
Accounts receivable	$16,400		
Less: Allowance for doubtful accounts.....	800	15,600	
Total current assets.....			$ 24,600
Property, plant and equipment:			
Land		$48,000	
Vehicles	$62,000		
Less: Accumulated depreciation.....	13,800	48,200	
Equipment	$25,000		
Less: Accumulated depreciation.....	3,800	21,200	
Total property, plant and equipment.....			117,400
Intangible assets:			
Patent.....	$20,100		
Less: Accumulated amortization, patent	3,100		17,000
Total assets.....			$159,000

Quick Study 10-5 (10 minutes)

($55,900 – $1,900)/4 = $13,500/year

Quick Study 10-6 (10 minutes)

Rate per copy = ($45,000 – $5,000)/4,000,000 copies = $0.01/copy

Year	Calculation		Annual Depreciation
2014	$.01 × 650,000	=	$ 6,500
2015	$.01 × 798,000	=	7,980
2016	$.01 × 424,000	=	4,240
2017	$.01 × 935,000	=	9,350
2018	$.01 × 1,193,000	=	11,930
			$40,000

Quick Study 10-7 (10 minutes)

Annual rate of depreciation = 2/5 = .40 or 40% per year

Year	Calculation	Annual Depreciation
2014	40% × $86,000 =	$34,400
2015	40% × ($86,000 – $34,400) =	20,640
2016	40% × ($86,000 – $34,400 – $20,640) =	12,384
2017	40% × ($86,000 – $34,400 – $20,640 – $12,384) =	2,576*
2018		0
		$70,000

***The calculation shows $7,430 of depreciation but that amount would cause accumulated depreciation to exceed the maximum allowed of cost less residual ($86,000 – $16,000 = $70,000). Therefore, the depreciation for 2017 must be adjusted to $2,576.**

Quick Study 10-8 (10 minutes)

Computer panel:
$4,000/8 years = $500 depreciation

Drycleaning drum:
$70,000 - $5,000 = $65,000/400,000 garments = $0.1625/garment;
$0.1625/garment × 62,000 garments = $10,075 depreciation

Stainless steel housing:
$85,000 - $10,000 = $75,000/20 years = $3,750 depreciation

Miscellaneous parts:
$26,000/2 years = $13,000 depreciation
Total depreciation on the dry cleaning equipment for 2014 = $500 + $10,075 + $3,750 + $13,000 = $27,325

Quick Study 10-9 (10 minutes)

	2014	2015
a.	$5,000	$6,000
b.	$3,000	$6,000

Calculations:

a. $\frac{60,000 - 0}{10 \text{ years}}$ = 6,000/year x 10/12 = 5,000
b. 6,000/year x 6/12 = 3,000

Quick Study 10-10 (10 minutes)

	2014	2015
a.	$10,000	$10,000
b.	$6,000	$10,800

Calculations:

a. 2/10 = .2 or 20%; 20% x 60,000 = 12,000 x 10/12 = 10,000 for 2014
20% x (60,000 – 10,000) = 10,000 for 2015
b. 20% x 60,000 = 12,000 x 6/12 = 6,000 for 2014
20% x (60,000 – 6,000) = 10,800 for 2015

Quick Study 10-11 (10 minutes)

	2014	2015
a.	10,000	14,000
b.	10,000	14,000

Calculations:
75,000 – 15,000 = 60,000/120,000 = $0.50 depreciation expense per unit produced
$0.50 x 20,000 = $10,000 for 2014; $0.50 x 28,000 = $14,000 for 2015

NOTE: The units-of-production method is a usage-based method as opposed to a time-based method (such as straight-line and double-declining-balance) and therefore partial periods do not affect the calculations.

Quick Study 10-12 (10 minutes)

[($35,720 – $11,820[1]) – $1,570]/ 7[2] years remaining = $3,190

1.($35,720 – $4,200)/8 = $3,940/year × 3 years = $11,820
2.10 – 3 = 7

Quick Study 10-13 (10 minutes)

2014			
Jan. 3	**Barbecue – Rotisserie……**	**1,000**	
	Cash……..		**1,000**
	To record the purchase of electronic rotisserie.		
Dec. 31	**Depreciation Expense, Barbecue……**	**1,560**	
	Accumulated Depreciation, Barbecue……		**1,560**
	To record revised depreciation on the barbecue caused by the addition of a rotisserie; $7,000 - $200 = $6,800 ÷ 5 years = $1,360 PLUS $1,000 ÷5 years = $200; Total depreciation = $1,360 + $200 = $1,560.		

Quick Study 10-14 (10 minutes)

Impairment losses occurred on the computer and the furniture in the amounts of $1,500 and $21,000, respectively.

Calculations:

Asset	Cost	Accumulated Depreciation	Book Value	Recoverable Amount	Impairment Loss
Building	$1,200,000	$465,000	$735,000	$735,000	N/A
Computer	3,500	1,800	1,700	200	$ 1,500
Furniture	79,000	53,000	26,000	5,000	21,000
Land	630,000	0	630,000	790,000	N/A
Machine	284,000	117,000	167,000	172,000	N/A

Quick Study 10-15 (10 minutes)

a.

2014			
Oct. 1	**Accumulated Depreciation, Equipment**	**39,000**	
	Cash	**17,000**	
	Equipment		**56,000**
	To record sale of equipment.		

b.

Oct. 1	**Accumulated Depreciation, Machinery**	**96,000**	
	Cash	**27,000**	
	Machinery		**109,000**
	Gain on Disposal		**14,000**
	To record sale of equipment.		

c.

Oct. 1	**Accumulated Depreciation, Truck**	**33,000**	
	Cash	**11,000**	
	Loss on disposal	**4,000**	
	Delivery truck		**48,000**
	To record sale of equipment.		

d.

Oct. 1	**Accumulated Depreciation, Furniture**	**21,000**	
	Loss on disposal	**5,000**	
	Furniture		**26,000**
	To record disposal of equipment.		

Quick Study 10-16 (10 minutes)

2014			
Dec 31	**Accumulated Depreciation, Automobile**	**13,500**	
	Computer*	**5,800**	
	Automobile		**15,000**
	Cash		**2,750**
	Gain on Disposal		**1,550**
	To record exchange.		

***Computer = FV of assets received = $5,800 as given**

Quick Study 10-17 (15 minutes)

2014			
Mar. 1	**Accumulated Depreciation, Machine (old)**	**36,000**	
	Machine (new) [2]	**117,000**	
	Cash [1]		**63,000**
	Machine (old)		**90,000**
	To record exchange of machines.		

1. Cash paid = $123,000 - $60,000 = $63,000
2. Machine (new) = $63,000 cash paid + $54,000 book value of old = $117,000

Quick Study 10-18 (10 minutes)

2014			
Jan. 4	**Franchise**	**95,000**	
	Cash		**95,000**
	To record purchase of franchise.		
Dec. 31	**Amortization Expense, Franchise**	**9,500**	
	Accumulated Amortization, Franchise		**9,500**
	To record amortization of franchise;		
	$95,000/10 years = $9,500 per year		

Quick Study 10-19 (10 minutes)

2014			
Oct. 1	**Mineral Rights**	**35,000,000**	
	Water Rights	**4,000,000**	
	Cash		**9,000,000**
	Long-Term Note Payable		**30,000,000**
	To record the purchase of intangibles.		
Dec. 31	**Amortization Expense, Mineral Rights**	**875,000**	
	Accumulated Amortization, Mineral Rights		**875,000**
	To record amortization of mineral rights; $35,000,000 ÷ 10 years = $3,500,000/year; $3,500,000/year × 3/12 = $875,000.		
31	**Amortization Expense, Water Rights**	**100,000**	
	Accumulated Amortization, Water Rights		**100,000**
	To record amortization of water rights; $4,000,000 ÷ 10 years = $400,000/year; $400,000/year × 3/12 = $100,000.		

*** Quick Study 10-20 (20 minutes)**

Motor (old)	**$45,000 - $5,000 = $40,000 ÷ 10 yrs × 8/12 =**	**$ 2,667**
Motor (new)	**$60,000 - $10,000 = $50,000 ÷ 8 yrs × 4/12 =**	**2,083**
Metal housing	**$68,000 - $15,000 = $53,000 ÷ 25 yrs =**	**2,120**
Misc. parts	**$15,000 ÷ 5 yrs =**	**3,000**
Total depreciation expense to be recorded on the machine for 2014 =		**$ 9,870**

EXERCISES

Exercise 10-1 (10 minutes)

Invoice cost	$15,000
Freight costs	260
Steel mounting	795
Assembly	375
Raw materials for testing	120
Less: discount ($15,000 × 2%)	300
Total acquisition costs	$16,250

Note: The $190 repairs are an expense and therefore not capitalized.

Exercise 10-2 (15 minutes)

Cost of land:

Purchase price for land	$1,200,000
Purchase price for old building	480,000
Demolition costs for old building	75,000
Levelling the lot	105,000
Total cost of land	$1,860,000

Cost of new building:

Construction costs	$2,880,000
Less: Cost of land improvements*	215,000
Cost of new building	$2,665,000

****The land improvements are a distinct PPE asset that depreciates at a different rate than the building. Therefore it should be debited to an account separate from the building.***

Journal entry:

2014			
Mar. 10	Land	1,860,000	
	Land Improvements	215,000	
	Building	2,665,000	
	Cash		4,740,000
	To record costs of plant assets.		

Exercise 10-3 (15 minutes)

Allocation of total cost:

PPE Asset	*(a)* Appraised Values	*(b)* Ratio of Individual Appraised Value to Total Appraised Value *(a) ÷ Total Appraised Value*	*(c)* Cost Allocation *(b) x Total Actual Cost*
Land	$249,480	249,480 ÷ 594,000 = .42 or 42%	$ 244,346[2]
Land Imprv.	83,160	83,160 ÷ 594,000 = .14 or 14%	81,448[3]
Building	261,360	261,360 ÷ 594,000 = .44 or 44%	255,981[4]
Totals	$594,000		$ 581,775[1]

1. 552,375 + 29,400 = 581,775
2. 42% x 581,775 = 244,346
3. 14% x 581,775 = 81,448
4. 44% x 581,775 = 255,981

Journal entry:

2014			
Apr. 12	Land	244,346	
	Land Improvements	81,448	
	Building	255,981	
	Cash		581,775
	To record costs of lump-sum purchase.		

Exercise 10-4 (20 minutes)

2014				
Jan. 1	**Land**		**1,296,000**	
	Building		**1,512,000**	
	Equipment		**1,123,200**	
	Tools		**388,800**	
		Cash		**1,104,000**
		Notes Payable		**3,216,000**
		To record lump-sum purchase.		

Calculations:

	(a)	***(b)***	***(c)***
PPE Asset	**Appraised Values**	**Ratio of Individual Appraised Value to Total Appraised Value** ***(a) ÷ Total Appraised Value***	**Cost Allocation** ***(b) x Total Actual Cost***
Land	**$ 1,152,000**	**1,152,000 ÷ 3,840,000 = .30 or 30%**	**$ 1,296,000[1]**
Building	**1,344,000**	**1,344,000 ÷ 3,840,000 = .35 or 35%**	**1,512,000[2]**
Equipment	**998,400**	**998,400 ÷ 3,840,000 = .26 or 26%**	**1,123,200[3]**
Tools	**345,600**	**345,600 ÷ 3,840,000 = .09 or 9%**	**388,800[4]**
Totals	**$ 3,840,000**		**$ 4,320,000**

1. **30% x 4,320,000 = 1,296,000**
2. **35% x 4,320,000 = 1,512,000**
3. **26% x 4,320,000 = 1,123,200**
4. **9% x 4,320,000 = 388,800**

Exercise 10-5 (10 minutes)

2014			
Dec. 31	**Depreciation Expense, Truck**	**11,100**	
	Accumulated Depreciation, Truck		**11,100**
	To record depreciation.		

Calculation:

[(37,500 + 13,500 + 6,750 + 5,250) – 7,500] / 5 years = 11,100

Exercise 10-6 (15 minutes)

Year	(a) Straight-line	(b) Double-declining-balance (Rate = 2/4 = .50 or 50%)	(c) Units-of-production (Rate = [(169,200 – 24,000)/181,500] = .80/unit)
2014	36,300[1]	50% × 169,200 = 84,600	30,640 (.80 × 38,300)
2015	36,300	50% × (169,200 – 84,600) = 42,300	32,920 (.80 × 41,150)
2016	36,300	$18,300[2]	42,080 (.80 × 52,600)
2017	36,300	0	39,560[3]

1. (169,200 – 24,000)/4 = 36,300/year
2. Maximum depreciation is limited to $145,200 which is cost less residual ($169,200 – $24,000) therefore depreciation for 2016 is $18,300 calculated as $145,200 – $126,900 accumulated depreciation recorded to date.
3. Maximum depreciation is limited to $145,200 which is cost less residual ($169,200 – $24,000) therefore depreciation for 2017 is $39,560 calculated as $145,200 – $105,640 accumulated depreciation recorded to date.

Exercise 10-7 (15 minutes)

a. (238,400 – 46,400)/5 = $38,400

b. Rate = 2/5 = .40 or 40%
40% × 238,400 = $95,360

c. Rate = (238,400 – 46,400)/240,000 km = $0.80/km
$0.80/km × 38,000 km = $30,400

Analysis component:
The units-of-production method will produce the highest net income in 2014 because it is the lowest depreciation expense for 2014.

Exercise 10-8 (30 minutes)

	Straight-Line[1]		Double-Declining-Balance[2]		Units-of-Production[3]	
Year	Depreciation Expense	Book Value at December 31	Depreciation Expense	Book Value at December 31	Depreciation Expense	Book Value at December 31
2014	21,250	104,000	50,100	75,150	16,875	108,375
2015	21,250	82,750	30,060	45,090	22,250	86,125
2016	21,250	61,500	18,036	27,054	30,000	56,125
2017	21,250	40,250	8,054	19,000	37,125	19,000
2018	21,250	19,000	0	19,000	0	19,000

Calculations:
1. **125,250 – 19,000 = 106,250/5 = 21,250**
2. **2/5 = .4 or 40%; .4 x 125,250 = 50,100; .4 x (125,250 – 50,100) = 30,060;**
   .4 x (125,250 – 50,100 – 30,060) = 18,036;
   .4 x (125,250 – 50,100 – 30,060 – 18,036) = 10,822; maximum = 8,054 calculated as cost less residual = 125,250 – 19,000 = 106,250 less total deprec. taken of 98,196 = 8,054.
3. **125,250 – 19,000 = 106,250/8,500 = $12.50/hour;**
   2014 – 12.50 x 1,350 = 16,875;
   2015 – 12.50 x 1,780 = 22,250;
   2016 – 12.50 x 2,400 = 30,000;
   2017 – 12.50 x 2,980 = 37,250; maximum = 37,125; calculated as cost less residual = 125,250 – 19,000 = 106,250 less total deprec. taken of 69,125 = 37,125.

Analysis component:
a. 2014 – Units-of-production; 2017 – Straight-line
b. 2014 – Double-declining-balance; 2017 – Units-of-production

Exercise 10-9 (30 minutes)

PPE Asset	*(a)* Appraised Values	*(b)* Ratio of Individual Appraised Value to Total Appraised Value *(a) ÷ Total Appraised Value*	*(c)* Cost Allocation *(b) x Total Actual Cost*
Land	$ 700,000	700,000 ÷ 2,100,000 = .33 or 33.33%	$ 840,000[1]
Building	1,120,000	1,120,000 ÷ 2,100,000 = .533 or 53.33%	1,344,000[2]
Equipment	210,000	210,000 ÷ 2,100,000 = .10 or 10%	252,000[3]
Tools	70,000	70,000 ÷ 2,100,000 = .033 or 3.33%	84,000[4]
Totals	$ 2,100,000		$ 2,520,000

1. *33.33% x 2,520,000 = 840,000*
2. *53.33% x 2,520,000 = 1,344,000*
3. *10.00% x 2,520,000 = 252,000*
4. *3.33% x 2,520,000 = 84,000*

PPE Asset	Cost	2014 Depreciation	2015 Depreciation
Land	$ 840,000	N/A[5]	N/A[5]
Building	1,344,000	1,344,000 × 2/10 = 268,800	(1,344,000 – 268,800) × 2/10 = 215,040
Equipment	252,000	252,000 × 2/5 = 100,800	(252,000 – 100,800) × 2/5 = 60,480
Tools	84,000	84,000 × 2/3 = 56,000	(84,000 – 56,000) × 2/3 = 18,667

5. Land is not depreciated as it has an unlimited life and is not consumed when used.

Analysis component:

We do not depreciate the cost of land as it has an unlimited life and is not consumed when used.

Exercise 10-10 (20 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost	Residual	Life	Balance of Accum. Deprec. Dec. 31, 2013	Depreciation Expense for 2014	Balance of Accum. Deprec. Dec. 31, 2014
Building	2 May 2008	S/L	$650,000	$250,000	10 yr.	$226,667	$40,000[1]	$266,667[2]
Modular Furniture	2 May 2008	S/L	72,000	0	6 yr.	68,000	4,000[3]	72,000[4]
Truck	25 Jan 2011	DDB	80,000	10,000	8 yr.	45,313	8,672[5]	53,985[6]

1. (650,000 – 250,000)/10 = 40,000/year
2. 226,667 + 40,000 = 266,667
3. (72,000 – 0)/6 = 12,000 per year; however the maximum accumulated depreciation = 72,000; 72,000 less total depreciation taken of 68,000 (8,000 in 2008 [(72,000 – 0)/6 = $12,000 per year X 8/12] plus 12,000 in years 2009 – 2013) = 4,000
4. 68,000 + 4,000 = 72,000
5. Rate = 2/8 = .25 or 25%
   25% × (80,000 – 45,313) = 8,672
6. 45,313 + 8,672 = 53,985

Analysis component:

Depreciation is the process of allocating an asset's cost to expense over its useful life. It should be done using a rational and systematic manner. Oroplata uses the straight-line method and the double-declining balance method for its assets, which are both acceptable under GAAP. Oroplata has likely chosen different methods for depreciating its assets to better reflect the usage pattern of each asset, which is acceptable under GAAP.

Exercise 10-11 (15 minutes)

OROPLATA EXPLORATION
Partial Balance Sheet
December 31, 2013

Assets			
Current assets			**$338,000**
Property, plant and equipment:			
Furniture	**$72,000**		
Less: Accumulated depreciation	**68,000**	**$4,000**	
Building	**$650,000**		
Less: Accumulated depreciation	**226,667**	**423,333**	
Truck	**$ 80,000**		
Less: Accumulated depreciation	**45,313**	**34,687**	
Total property, plant and equipment			**462,020**
Total assets			**$800,020**

Exercise 10-12 (15 minutes)

a. Straight-line depreciation:

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Totals
Income before depreciation	$171,000	$171,000	$171,000	$171,000	$171,000	$855,000
Depreciation expense[1]	73,080	73,080	73,080	73,080	73,080	365,400
Net income	$ 97,920	$ 97,920	$ 97,920	$ 97,920	$ 97,920	$489,600

b. Double-declining-balance depreciation:

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Totals
Income before depreciation	$171,000	$171,000	$171,000	$171,000	$171,000	$855,000
Depreciation expense[2]	188,160	112,896	64,344	0	0	365,400
Net income (loss)	$(17,160)	$ 58,104	$106,656	$171,000	$171,000	$489,600

1. (470,400 – 105,000)/5 = 73,080
2. Rate = 2/5 = .40 or 40%
   Year 1: 470,400 × 40% = 188,160
   Year 2: (470,400 – 188,160) × 40% = 112,896
   Year 3: 64,344 max. depreciation expense (calculated as 470,400 – 105,000 – 188,160 – 112,896 = 64,344)

Analysis component:
Kenartha Oil will choose straight-line depreciation to depreciate the equipment if its goal is to show the highest value possible for the equipment on the Year 1 balance sheet. Straight-line will result in lower depreciation than double declining balance in Year 1. The lower the depreciation, the greater the net book value of the asset (cost less accumulated depreciation appearing in the balance sheet).

Exercise 10-13 (15 minutes)

	Depreciation	
Year	Straight-Line[1]	Units-of-Production[3]
2014	7,200	20,088
2015	21,600	43,416
2016	21,600	33,696

1. 156,000 – 26,400 = 129,600/6 = 21,600 x 4/12 = 7,200
2. 156,000 – 26,400 = 129,600/200,000 = $0.648/unit;
   .648 x 31,000 = 20,088; .648 x 67,000 = 43,416; .648 x 52,000 = 33,696

Analysis component:
If depreciation is not recorded, expenses are understated and net income is overstated on the income statement and on the balance sheet, assets and equity would be overstated.

Exercise 10-14 (25 minutes)

	Depreciation	
Year	Straight-Line[1]	Double-Declining-Balance[2]
2014	11,000	22,000
2015	22,000	35,200
2016	22,000	21,120

Calculations:
1. 110,000/5 = 22,000 x 6/12 =11,000
2. 2/5 = .4 or 40%; .4 x 110,000 x 6/12 = 22,000;
   .4 x (110,000 – 22,000) = 35,200; .4 x (110,000 – 22,000 – 35,200) = 21,120

Analysis component:

If the furniture had been debited to an expense account in 2014 when purchased instead of being recorded as a PPE asset, expenses would have been overstated and net income would have been understated on the income statement in 2014 while assets and equity would have been understated on the balance sheet for the same year. Exercise 10-15 (10 minutes)

	(a)	(b)
Year	**Straight-Line**	**Double-Declining-Balance**
2014	**(125,000 – 12,500)/5 = 22,500 x 9/12 = 16,875**	**Rate = 2/5 = .40 or 40% 125,000 × 40% × 9/12 = 37,500**
2015	**(125,000 – 12,500)/5 = 22,500**	**(125,000 – 37,500) × 40% =35,000**

Exercise 10-16 (10 minutes)

1. (43,500 – 5,000)/4 = 9,625/year × 2 years = 19,250 accumulated depreciation
Book value = 43,500 – 19,250 = 24,250

2. [(43,500 – 19,250) – 3,850]/3 = 6,800

Exercise 10-17 (15 minutes)

2017			
Dec. 31	**Depreciation Expense, Machine**	**7,624**	
	Accumulated Depreciation, Machine		**7,624**
	To record depreciation.		

Calculations:

Revised depreciation = (71,200 – 30,800*) – 8,000 = 7,624/year
7 – 2 9/12 = 4.25 yrs

***2014 depreciation = 8,400 (71,200 – 15,200)/5 = 11,200 × 9/12**
2015 depreciation = 11,200
2016 depreciation = 11,200
Accumulated depreciation 30,800

Exercise 10-18 (20 minutes)

Part 1

2014				
Jan. 5	**Warehouse – Door……**		**25,500**	
	Accounts Payable……			**25,500**
	To record addition of door on East wall of warehouse.			

Part 2

2014			
Dec. 31	**Depreciation Expense, Warehouse ……**	**14,700**	
	Accumulated Depreciation, Warehouse….		**14,700**

To record revised depreciation on warehouse;
$292,500 – $90,000 = $202,500; $202,500 ÷ 15 yrs = $13,500
PLUS $25,500 - $7,500 = $18,000; $18,000 ÷ 15 yrs = $1,200;
Total depreciation on the warehouse = $13,500 + $1,200 = $14,700.

Exercise 10-19 (30 minutes)

Part 1

2014			
Dec. 31	Impairment Loss	13,500	
	Equipment		12,000
	Office Building		1,500
	To record impairment loss on equipment and office building.		

Part 2

2015			
Dec. 31	Depreciation Expense, Equipment	1,800	
	Accumulated Depreciation, Equipment		1,800
	To record revised depreciation on equipment.		
31	Depreciation Expense, Furniture	491	
	Accumulated Depreciation, Furniture		491
	To record depreciation on furniture.		
31	Depreciation Expense, Office Building	3,838	
	Accumulated Depreciation, Office Building		3,838
	To record depreciation on office building		
31	Depreciation Expense, Warehouse	2,250	
	Accumulated Depreciation, Warehouse		2,250
	To record depreciation on warehouse.		

Calculations:

Asset	Cost	Accum. Deprec.	Book Value	Recoverable Amount	Impairment Loss	2015 Dep. Exp.
Equipment	$40,000	$20,000	$20,000	$ 8,000	$12,000	1,800[1]
Furniture	12,000	9,509	2,491	2,950	N/A	491[2]
Land	85,000	N/A	85,000	101,800	N/A	N/A
Office Bldng	77,000	23,000	54,000	52,500	1,500	3,838[3]
Warehouse	55,000	12,938	42,062	45,100	N/A	2,250[4]

1. [40,000 – 5,000)/7,000] = $5.00/unit; 20,000 accum. dep. ÷ $5.00/unit = 4,000 units; 7,000 units in original useful life less 4,000 units depreciated to date equals 3,000 remaining units; 40,000 – 12,000 = 28,000 revised cost; 28,000 – 20,000 accum. dep. = 8,000 revised book value; 8,000 – 5,000 residual value = 3,000; 3,000 ÷ 3,000 remaining units = $1.00/unit revised depreciation rate; 1.00/unit × 1,800 units = 1,800
2. 12,000 – 9,509 = 2,491; 2,491 × 2/8 = 623 which exceeds maximum allowable; maximum allowable = 2,491 remaining book value – 2,000 residual = 491
3. 77,000 – 1,500 = 75,500 revised cost of office building; 75,500 – 23,000 = 52,500 remaining book value; (52,500 – 17,000) ÷ 9.25 yrs remaining useful life = 3,838
4. 55,000 – 10,000 = 45,000; 45,000 ÷ 20 yrs = 2,250

Exercise 10-20 (20 minutes)

a.

2014				
Mar.	**1**	**Accumulated Depreciation, Van**	**21,850**	
		Cash	**20,150**	
		Van		**42,000**
		To record the sale of the van for $20,150.		

b.

Mar.	**1**	**Accumulated Depreciation, Van**	**21,850**	
		Cash	**21,600**	
		Van		**42,000**
		Gain on Disposal		**1,450**
		To record the sale of the van for $21,600.		

c.

Mar.	**1**	**Accumulated Depreciation, Van**	**21,850**	
		Cash	**19,200**	
		Loss on Disposal	**950**	
		Van		**42,000**
		To record the sale of the van for $19,200.		

d.

Mar.	**1**	**Accumulated Depreciation, Van**	**21,850**	
		Loss on Disposal	**20,150**	
		Van		**42,000**
		To record the sale of the van for $0; it was scrapped.		

Exercise 10-21 (15 minutes)

To record partial year's depreciation in 2018:

2018				
July 1	**Depreciation Expense**		**21,200**	
	Accumulated Depreciation, Machine			**21,200**
	To record partial year depreciation in year of disposal; (296,800/7) × 6/12 = 21,200.			

(a)

July 1	**Accumulated Depreciation, Machine**		**190,800***	
	Cash		**112,000**	
	Machine			**296,800**
	Gain on Disposal			**6,000**
	To record sale of machine for 112,000.			

(b)

1	**Accumulated Depreciation, Machine**		**190,800***	
	Cash		**96,000**	
	Loss on Disposal		**10,000**	
	Machine			**296,800**
	To record receipt of $96,000 from insurance settlement.			

***(296,800/7) × 4.5 years = 190,800**

Exercise 10-22 (10 minutes)

a. **190,000 – 105,000 = 85,000 book value**

b.

Book value of the assets given up = (85,000 + 164,000)..	**=**	**249,000**	
Less: Fair value of assets given up (56,000 + 164,000)	**=**	**220,000**	
Loss on exchange		**29,000**	

c. **220,000**

d.

2014				
Oct. 6	**Tractor (new)***		**220,000**	
	Accumulated Depreciation, Tractor (old)		**105,000**	
	Loss on Exchange		**29,000**	
	Cash			**164,000**
	Tractor (old)			**190,000**
	To record exchange of old tractor for a new one.			

***$56,000 + $164,000 = $220,000.**

Exercise 10-23 (20 minutes)

a.

2014				
Nov. 3	**Accumulated Depreciation, Computer (old)**		**65,000**	
	Computer (new)[1]		**175,000**	
		Computer (old)		**150,000**
		Cash		**90,000**
	To record exchange of computers.			

1. Computer (new) = Cash paid + Book Value of asset given up
= $90,000 + $85,000 = $175,000

b.

2014				
Nov. 3	**Accumulated Depreciation, Computer (old)**		**65,000**	
	Computer (new)[1]		**174,000**	
	Loss on Disposal[2]		**1,000**	
		Computer (old)		**150,000**
		Cash		**90,000**
	To record exchange of computers.			

1. Computer (new) = Fair Value of Assets Received
= $174,000
2. Loss on Disposal = Proceeds – Book Value of assets given up
= $174,000 – [($150,000 – $65,000) + $90,000] = $1,000

Analysis component:
The dollar value that will be used to depreciate the new computer is $174,000 because the Cost Principle requires that all transactions are to be recorded at their original cost. $174,000 was determined to be the cost.

Exercise 10-24 (25 minutes)

(a)

Jan. 2	Accumulated Depreciation, Machine	45,250	
	Cash	32,500	
	Loss on Disposal	6,250	
	Machine		84,000
	To record sale of machine;		
	32,500 – (84,000 – 45,250) = 6,250 loss.		

(b)

Jan. 2	Accumulated Depreciation, Machine	45,250	
	Tools	115,750	
	Cash		77,000
	Machine		84,000
	To record exchange of machine;		
	Value of assets given up = $77,000 cash + $38,750		
	book value of the old machine = $115,750.		

(c)

Jan. 2	Accumulated Depreciation, Machine	45,250	
	Van	104,000	
	Loss on Disposal	2,750	
	Cash		68,000
	Machine		84,000
	To record exchange of machine;		
	104,000 – (68,000 + 38,750) = 2,750 loss.		

(d)

Jan. 2	Accumulated Depreciation, Machine	45,250	
	Land	75,000	
	Machine		84,000
	Cash		25,000
	Gain on Disposal		11,250
	To record exchange;		
	75,000 – (25,000 + 38,750) = 11,250 gain.		

Exercise 10-25 (10 minutes)

2014				
Jan.	**1**	**Copyrights**	**177,480**	
		Cash		**177,480**
		To record purchase of copyright.		
Dec.	**31**	**Amortization Expense, Copyrights**	**14,790**	
		Accumulated Amortization, Copyrights		**14,790**
		To record amortization of copyright; 177,480/12 = 14,790		

Exercise 10-26 (15 minutes)

Part 1

2014				
Sept.	**5**	**Timber Rights**	**432,000**	
		Cash		**96,000**
		Long-Term Notes Payable		**336,000**
		To record purchase of timber rights.		
	27	**Patent**	**148,000**	
		Accounts Payable		**148,000**
		To record purchase of patent.		

Part 2

2014				
Dec.	**31**	**Amortization Expense, Timber Rights**	**48,000**	
		Accumulated Amort., Timber Rights		**48,000**
		To record amortization of timber rights; $432,000 ÷ 3 yrs = $144,000/year × 4/12 = $48,000.		
	31	**Amortization Expense, Patent**	**3,700**	
		Accumulated Amortization, Patent		**3,700**
		To record amortization of patent; $148,000 ÷ 10 yrs = $14,800/year × 3/12 = $3,700.		
2015				
Dec.	**31**	**Amortization Expense, Timber Rights**	**144,000**	
		Accumulated Amortization, Timber Rights		**144,000**
		To record amortization of timber rights; $432,000 ÷ 3 yrs = $144,000/year.		
	31	**Amortization Expense, Patent**	**14,800**	
		Accumulated Amortization, Patent		**14,800**
		To record amortization of patent; $148,000 ÷ 10 yrs = $14,800/year.		

Exercise 10-27 (25 minutes)

Quia Resources
Balance Sheet
October 31, 2014

Assets			
Current assets:			
Cash		$ 9,600	
Accounts receivable	$ 27,200		
Less: Allowance for doubtful accounts	1,920	25,280	
Total current assets			$ 34,880
Property, plant and equipment:			
Land		$ 89,600	
Building	$ 147,200		
Less: Accumulated depreciation	81,600	65,600	
Equipment	$184,000		
Less: Accumulated depreciation	110,400	73,600	
Total property, plant and equipment			228,800
Intangible assets:			
Mineral rights	$ 57,600		
Less: Accumulated amortization	30,400	$ 27,200	
Trademark	$ 33,600		
Less: Accumulated amortization	22,400	11,200	
Total intangible assets			38,400
Total assets			$302,080
Liabilities			
Current liabilities:			
Accounts payable	$18,400		
Current portion of long-term note	34,000		
Total current liabilities		$ 52,400	
Long-term liabilities:			
Note payable, less current portion		38,000	
Total liabilities			$ 90,400
Equity			
Ave Quia, capital			211,680[1]
Total liabilities and equity			$302,080

Calculations:

1. **221,280 adjusted capital balance + 1,433,600 revenues – 1,443,200 expenses = 211,680 post-closing capital balance**

Exercise 10-28 (35 minutes)

Victhom Bionics
Balance Sheet
April 30, 2014

Assets			
Current assets:			
Cash		$ 9,000	
Accounts receivable	$16,200		
Less: Allowance for doubtful accounts	900	15,300	
Prepaid rent		1,080[1]	
Total current assets			$ 25,380
Property, plant and equipment:			
Furniture	$21,600		
Less: Accumulated depreciation	14,400[2]	$ 7,200	
Machinery	$48,600		
Less: Accumulated depreciation	21,600[3]	27,000	
Total property, plant and equipment			34,200
Intangible assets:			
Patent		$21,600	
Less: Accumulated amortization		720[4]	20,880
Total assets			$80,460
Liabilities			
Current liabilities:			
Accounts payable	$4,860		
Unearned revenues	5,760		
Current portion of long-term note	5,400		
Total current liabilities		$ 16,020	
Long-term liabilities:			
Note payable, less current portion		8,100	
Total liabilities			$24,120
Equity			
Josh Victhom, capital			56,340[5]
Total liabilities and equity			$80,460

Calculations:

1. **12,960 × 11/12 = 11,880 rent used; 12,960 – 11,880 = 1,080 remaining in Prepaid Rent**
2. **21,600 ÷ 5 = 4,320; 4,320 + 10,080 = 14,400 accum. dep.**
3. **48,600 – 20,088 = 28,512; 28,512 × 2/10 = 5,702; maximum depreciation is 48,600 – 27,000 = 21,600 therefore 2014 depreciation expense is 1,512 and accum. dep. is 20,088 + 1,512 = 21,600.**
4. **21,600 ÷ 15 = 1,440/year; 1,440 × 6/12 = 720.**
5. **22,572 unadjusted capital + 223,200 revenues – 82,800 withdrawals – 88,200 expenses – 4,320 dep. furniture – 1,512 dep. machinery – 720 amort. patent – 11,880 rent expense = 56,340 post-closing capital**

***Exercise 10-29 (30 minutes)**

Part 1

2014

Jul. 3	**Truck – Tool Carrier**	**9,600**	
	Cash		**9,600**
	To record installation of new component to truck.		

Part 2

Truck:							
Component	**Date of Purchase**	**Cost**	**Est. Resid.**	**Est. Life**	**Accum. Dep. at Dec 31/13**	**Dep. Exp. Dec 31/14**	**Dep. Exp. Dec 31/15**
Truck body	**Jul 7/12**	**$ 28,000**	**-0-**	**10 yr**	**$ 4,200**	**$ 2,800[1]**	**$ 2,800[1]**
Motor	**Jul 7/12**	**8,000**	**-0-**	**10 yr**	**1,200**	**800[2]**	**800[2]**
Tool Carrier	**Jul 3/14**	**9,600**	**-0-**	**8 yr**	**-0-**	**600[3]**	**1,200[3]**
		$ 45,600			**$ 5,400**	**$4,200**	**$4,800**

Calculations:

1. **28,000 ÷ 10 yrs = 2,800/yr**
2. **8,000 ÷ 10 yrs = 800/yr**
3. **9,600 ÷ 8 yrs = 1,200/yr × 6/12 = 600 for partial period in 2014**

Part 3

Book value of truck at December 31, 2014:
$45,600 total cost – ($5,400 + $4,200 = $9,600) = $36,000

Book value of truck at December 31, 2015:
$36,000 - $4,800 = $31,200

PROBLEMS

Problem 10-1A (25 minutes)

Part 1

	Land	*Building Two*	*Building Three*	*Land Impmnts. One*	*Land Impmnts. Two*
Purchase price*	$2,867,200	$985,600		$627,200	
Demolition	676,160				
Landscaping	267,520				
New building			$3,230,400		
New improvements					$252,800
Totals	$3,810,880	$985,600	$3,230,400	$627,200	$252,800

***Allocation of purchase price:**

	Appraised Value	*Percent of Total*	*Apportioned Cost*
Land	$2,984,960	64%	$2,867,200
Building Two	1,026,080	22	985,600
Land Improvements One	652,960	14	627,200
Totals	$4,664,000	100%	$4,480,000

Part 2

Mar. 31	Land	3,810,880	
	Building Two	985,600	
	Building Three	3,230,400	
	Land Improvements One	627,200	
	Land Improvements Two	252,800	
	Cash		8,906,880
	To record costs of plant assets.		

Problem 10-2A (25 minutes)

Derlak Enterprises
Balance Sheet
December 31

	2014		2013	
Assets				
Current assets:				
Cash	$ 12,000		$ 28,800	
Prepaid rent	40,000		48,000	
Office supplies	2,400		2,320	
Total current assets		$ 54,400		$ 79,120
Property, plant and equipment:				
Equipment	$184,000		$100,000	
Less: Accumulated depreciation	72,800	111,200	64,800	35,200
Tools	$143,920		$100,800	
Less: Accumulated depreciation	44,800	99,120	42,400	58,400
Vehicles	$252,800		$252,800	
Less: Accumulated depreciation	108,800	144,000	97,600	155,200
Total property, plant and equipment		354,320		248,800
Intangible assets:				
Franchise	$ 41,600		$ 41,600	
Less: Accumulated amortization	19,200	22,400	11,200	30,400
Patent	$ 16,000		$ 16,000	
Less: Accumulated amortization	4,000	12,000	2,400	13,600
Total intangible assets		34,400		44,000
Total assets		$443,120		$371,920
Liabilities				
Current liabilities:				
Accounts payable	$ 56,800		$ 9,600	
Salaries payable	32,800		26,400	
Total current liabilities		$ 89,600		$ 36,000
Long-term liabilities:				
Notes payable, due in 2023		240,000		129,600
Total liabilities		$329,600		$165,600
Equity				
Lee Derlak, capital		113,520 *		206,320
Total liabilities and equity		$443,120		$371,920

206,320 – 32,000 – 780,800 + 720,000 = 113,520

Analysis component:
Derlak's assets are financed mainly by equity in 2013. In 2014, the assets are financed largely by debt. The change from 2013 to 2014 in how assets were mainly financed (from equity to debt) is unfavourable because the greater the debt the greater the risk associated with debt (is/will Derlak be in a position to pay the interest and principal as it comes due).

Problem 10-3A (25 minutes)

Year	Depreciation Method[1]:		
	Straight-line	Double-declining balance	Units-of-production[2]
2014	(828,000 – 192,000)/10 = 63,600/year × 10/12 = 53,000	Rate = 2/10 = .20 or 20% 828,000 × 20% × 10/12 = 138,000	Rate = (828,000 – 192,000)/13,250 = 48/hour 48 × 720 = 34,560
2015	63,600	(828,000 – 138,000) × 20% = 138,000	48 × 1,780 = 85,440
2016	63,600	(828,000 – 138,000 – 138,000) × 20% = 110,400	48 × 1,535 = 73,680

1. ***Depreciation is calculated to the nearest month.***
2. ***Assume actual hours of service were: 2014: 720; 2015: 1,780; 2016: 1,535.***

Analysis component:

If you could ignore the matching principle, you might record the purchase of the boats as a revenue expenditure which means the entire cost of $828,000 would have been expensed in 2014, the year of purchase. This would have resulted in the net income being understated in 2014 and, because of depreciation expense not being recorded, net income would be overstated in the remaining years of the asset's useful life as well. On the balance sheet, recording the purchase of the boats as a revenue expenditure would have caused assets and equity to be understated in each year of the asset's life. It is interesting to note that the error would self-correct by the end of the asset's life if it would have gone undetected.

Problem 10-4A (25 minutes)

Year	Depreciation Method[1]:		
	Straight-line	Double-declining balance	Units-of-production[2]
2014	(828,000 – 192,000)/10 = 63,600/year × 6/12 = 31,800	Rate = 2/10 = .20 or 20% 828,000 × 20% × 6/12 = 82,800	Same as Problem 10-3A; Units-of-production is usage based and not affected by time 34,560
2015	63,600	(828,000 – 82,800) × 20% = 149,040	85,440
2016	63,600	(828,000 – 82,800 – 149,040) × 20% = 119,232	73,680

1. ***Depreciation is calculated using the half-year convention.***
2. ***Assume actual hours of service were: 2014: 720; 2015: 1,780; 2016: 1,535.***

Problem 10-5A (25 minutes)

	2014	2015	2016
1. Double-declining-balance method			
Equipment	$375,000	$375,000	$375,000
Less: Accumulated depreciation	46,875	128,906	190,430
Year-end book value	$328,125	$246,094	$184,570
Depreciation expense for the year[1]	$46,875	$82,031	$61,524
2. Straight-line method			
Equipment	$375,000	$375,000	$375,000
Less: Accumulated depreciation	19,531	58,594	97,657
Year-end book value	$355,469	$316,406	$277,343
Depreciation expense for the year	$19,531[2]	$39,063	$39,063

1. Rate = 2/8 = 0.25 or 25%
   2014: 0.25 × 375,000 × 6/12 = 46,875
   2015: 0.25 × (375,000 – 46,875) = 82,031
   2016: 0.25 × (375,000 – 46,875 – 82,031) = 61,524

2. (375,000 – 62,500)/8 = 39,063 × 6/12 = 19,531

Problem 10-6A (15 minutes)

1.

2015				
Apr.	30	Depreciation Expense, Building	65,000	
		Accumulated Depreciation, Building		65,000
		To record annual depreciation;		
		975,000/15 = 65,000.		
	30	Depreciation Expense, Equipment	86,400	
		Accumulated Depreciation, Equipment		86,400
		To record annual depreciation;		
		Rate = 2/10 = .20 or 20%;		
		432,000 × 20% = 86,400.		

Problem 10-6A *(continued)*

2.

BigSky Farms
Partial Balance Sheet
April 30, 2015

Property, plant and equipment:		
Land		**$650,000**
Building	**$975,000**	
Less: Accumulated depreciation	**780,000**	**195,000**
Equipment	**750,000**	
Less: Accumulated depreciation	**404,400**	**345,600**
Total property, plant and equipment		**$1,190,600**

Problem 10-7A (50 minutes)

Part 1

	Market Value	*Percentage of Total*	*Apportioned Cost*
Building	**$ 652,800**	**48%**	**$ 604,800**
Land	**462,400**	**34**	**428,400**
Land improvements	**68,000**	**5**	**63,000**
Vehicles	**176,800**	**13**	**163,800**
Total	**$1,360,000**	**100%**	**$1,260,000**

2014			
Mar. 1	**Building**	**604,800**	
	Land	**428,400**	
	Land Improvements	**63,000**	
	Vehicles	**163,800**	
	Cash		**1,260,000**
	To record asset purchases.		

Part 2 **2014 straight-line depreciation on building:**
($604,800 – $41,040)/15 × 10/12 = $31,320

Part 3 **2014 double-declining-balance depreciation on land improvements:**
Rate = 2/5 = .40 or 40%
$63,000 × 40% × 10/12 = $21,000

Problem 10-7A (*concluded*)

Analysis component:
If the assets purchased on March 1, 2014 were put into service on May 23, 2014 the depreciation expense calculated in parts 2 and 3 above would be based on 7 months instead of 10 months because straight-line and double-declining-balance depreciation are both based on the time the assets are actually USED during the period.

Problem 10-8A (30 minutes)

Year	*Straight-Line*[a]	*Units-of-Production*[b]	*Double-Declining-Balance*[c]
2014	$ 38,000	$ 20,544	$ 84,000
2015	114,000	117,504	210,000
2016	114,000	114,816	105,000
2017	114,000	113,472	52,500
2018	76,000	89,664	4,500
Totals	$456,000	$456,000	$456,000

[a]**Straight-line:**
Cost per year = (504,000 – 48,000)/4 years = $114,000 per year × 4/12
= 38,000

[b]**Units-of-production:**
Cost per unit = (504,000 – 48,000)/475,000 units = $0.96 per unit

Year	*Units*	*Unit Cost*	*Depreciation*
2014	21,400	$0.96	$ 20,544
2015	122,400	0.96	117,504
2016	119,600	0.96	114,816
2017	118,200	0.96	113,472
2018	102,000	0.96	89,664*
Total			$456,000

Take only enough depreciation in Year 2018 to reach the maximum accumulated depreciation of $456,000 (which is cost less residual).

[c]**Double-declining-balance:**
Rate = 2/4 = .50 or 50%
2014: 50% × 504,000 × 4/12 = 84,000
2015: 50% × (504,000 – 84,000) = 210,000
2016: 50% × (504,000 – 84,000 – 210,000) = 105,000
2017: 50% × (504,000 – 84,000 – 210,000 – 105,000) = 52,500
2018: 456,000 – 451,500* = 4,500
Take only enough depreciation in Year 2018 to reach the maximum accumulated depreciation of $456,000 (which is cost less residual).

Problem 10-9A (30 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost	Residual	Life	Balance of Accum. Deprec. Dec. 31, 2014	Deprec. Expense for 2015	Balance of Accum. Deprec. Dec. 31, 2015
Office equipment	March 27/11	Straight-line	$52,000	$14,000	10 yr.	14,250[1]	3,800[2]	18,050[3]
Machinery	June 4/11	Double-declining balance	$275,000	$46,000	6 yr.	209,362[4]	19,638[5]	229,000[6]
Truck	Nov. 13/14	Units-of-production	$113,000	$26,000	250,000 km.	4,872[7]	23,664[8]	28,536[9]

1. (52,000 – 14,000)/10 = 3,800/year × 3 9/12 = 14,250
2. (52,000 – 14,000)/10 = 3,800/year
3. 14,250 + 3,800 = 18,050
4. Rate = 2/6 = .3333 or 33.33%

2011: 33.33% × 275,000 × 7/12 =	53,472
2012: 33.33% × (275,000 – 53,472) =	73,843
2013: 33.33% × (275,000 – 53,472 – 73,843) =	49,228
2014: 33.33% × (275,000 – 53,472 – 73,843 – 49,228) =	32,819
Accumulated depreciation at Dec. 31, 2014 =	$209,362

5. 2015: (275,000 – 46,000) – 209,362 = 19,638
6. 209,362 + 19,638 = 229,000
7. Rate = (113,000 – 26,000)/250,000 = $0.348/km; 14,000 × 0.348 = 4,872
8. 68,000 × 0.348 = 23,664
9. 4,872 + 23,664 = 28,536

Problem 10-10A (20 minutes)

2014				
Mar.	**26**	**Delivery Truck**	**102,900**	
		Cash		**102,900**
		To record purchase of new truck;		
		$97,075 plus $5,825 freight costs.		
Dec.	**31**	**Depreciation Expense, Delivery Truck[1]**	**13,185**	
		Accumulated Depreciation, Delivery Truck		**13,185**
		To record depreciation from Mar. 26 to		
		Dec. 31, 2014.		
2015				
Dec.	**31**	**Depreciation Expense, Delivery Truck[2]**	**22,220**	
		Accumulated Depreciation, Delivery Truck		**22,220**
		To record depreciation.		

1. (102,900 – 15,000)/5 × 9/12 = 13,185

2. $\dfrac{\text{102,900 – 13,185 – 17,500}}{\text{4 – 9/12 = 3.25}} = \text{22,220}$

Problem 10-11A (30 minutes)

2015				
Dec.	**31**	**Depreciation Expense, Machinery[1]**	**95,200**	
		Accumulated Depreciation, Machinery		**95,200**
		To record annual depreciation.		
	31	**Depreciation Expense, Office Furniture[2]**	**11,733**	
		Accumulated Depreciation, Office Furniture		**11,733**
		To record annual depreciation.		

Calculations:

1.

Cost	Accumulated Depreciation	Residual	
556,800 –	246,400 –	120,000	= 95,200
	2		

2.

Cost	Accumulated Depreciation	Residual	
89,600 –	49,600 –	(11,200 – 6,400)	= 11,733
	5 – 2 = 3		

Problem 10-12A (20 minutes)

Part 1

2014			
Jan. 7	**Machine #5027 – Blade (new) .....**	**10,400**	
	Accumulated Depreciation, Machine #5027 – Blade	**2,688[1]**	
	Loss on Disposal	**5,032**	
	Machine #5027 – Blade (old)		**7,720**
	Cash		**10,400**
	To record installation of replacement blade.		

Calculations:

1. 7,720 – 1,000 = 6,720; 6,720 ÷ 5 yrs = 1,344 deprec. for 2012;
1,344 + 1,344 deprec. for 2013 = 2,688 accum. deprec. at Dec. 31, 2013.

Part 2

Metal Housing	**44,000 – 8,000 = 36,000; 36,000 ÷ 15 yrs = 2,400 for 2012 *PLUS* 2,400 for 2013 = 4,800 accum. deprec. at Dec. 31/2013; Revised deprec. = 44,000 – 4,800 = 39,200 book value; 39,200 – 8,600 residual = 30,600 depreciable cost; 30,600 ÷ 18 years* =**	**$1,700**
	20 years – 2 yrs already depreciated = 18 yr remaining life	
Motor	**2012: 26,000 × 2/10 = 5,200**	
	2013: 26,000 – 5,200 = 20,800 × 2/10 = 4,160	
	2014: 20,800 – 4,160 = 16,640 × 2/10 =	**3,328**
Blade	**10,400 – 1,000 = 9,400; 9,400 ÷ 5 yrs =**	**1,880**
Total depreciation expense to be recorded on Machine #5027 for 2014 =		**$6,908**

Problem 10-13A (40 minutes)

Part 1

2014				
Oct. 31	**Impairment Loss**		**24,200**	
	Equipment			**24,200**
	To record impairment loss on equipment.			
31	**Impairment Loss**		**14,300**	
	Furniture			**14,300**
	To record impairment loss on furniture.			

Calculations:

	Book Value	Recoverable Value	Impairment Loss
Land	**$105,600**	**$136,400**	**NA**
Building	**57,200**	**105,600**	**NA**
Equipment	**52,800**	**28,600**	**$24,200**
Furniture	**29,700**	**15,400**	**14,300**

Problem 10-13A (*concluded*)
Part 2

Safety-First Company
Balance Sheet
October 31, 2014

Assets			
Current assets:			
Cash		$ 11,000	
Accounts receivable	$ 19,800		
Less: Allowance for doubtful accounts	880	18,920	
Merchandise inventory		35,200	
Total current assets			$ 65,120
Property, plant and equipment:			
Land		$105,600	
Building	$136,400		
Less: Accumulated depreciation	79,200	57,200	
Equipment	$ 66,000[1]		
Less: Accumulated depreciation	37,400	28,600	
Furniture	$ 36,300[2]		
Less: Accumulated depreciation	20,900	15,400	
Total property, plant and equipment			206,800
Total assets			$271,920
Liabilities			
Current liabilities:			
Accounts payable	$ 11,220		
Unearned revenues	7,920		
Current portion of long-term note	26,400		
Total current liabilities		$ 45,540	
Long-term liabilities:			
Note payable, less current portion		59,400	
Total liabilities			$104,940
Equity			
Tarifa Sharma, capital			166,980[3]
Total liabilities and equity			$271,920

Calculations:

1. **90,200 cost – 24,200 impairment loss = 66,000**
2. **50,600 cost – 14,300 impairment loss = 36,300**
3. **62,480 adjusted capital balance + 904,200 sales – 761,200 expenses – 24,200 impairment loss, equip. – 14,300 impairment loss, furn. = 166,980 post-closing capital balance**

Analysis component:
An impairment loss causes net income to decrease on the income statement. On the balance sheet, an impairment loss causes total assets to decrease because of the decrease in property, plant and equipment. Equity also decreases on the balance sheet as a result of the decreased net income.

Problem 10-14A (30 minutes)

1.

2015				
Sept. 27	**Depreciation Expense, Building**		**4,950**	
	Accumulated Depreciation, Building[1]			**4,950**
	To record building depreciation for 2015.			
27	**Cash**		**592,000**	
	Accumulated Depreciation, Building[2]		**398,550**	
	Gain on Disposal			**67,350**
	Land			**396,800**
	Building			**526,400**
	To record sale of land and building.			

2.

Nov. 2	**Depreciation Expense, Equipment**		**16,133**	
	Accumulated Depreciation, Equipment[3]			**16,133**
	To record equipment depreciation for 2015.			
2	**Cash**		**56,800**	
	Accumulated Depreciation, Equipment[4]		**90,533**	
	Loss on Disposal		**23,867**	
	Equipment			**171,200**
	To record sale of equipment.			

1. Depreciation from Jan. 1, 2015 to Sept. 27, 2015
[(526,400 – 393,600) – 80,000]/8 = 6,600/year × 9/12 = 4,950

2. Accumulated Depreciation, Building =
4,950 + 393,600 = 398,550

3. Depreciation from Jan. 1, 2015 to Nov. 2, 2015
Rate = 2/10 = .20 or 20%
171,200 – 74,400 = 96,800 × 20% = 19,360 × 10/12 = 16,133

4. Accumulated Depreciation, Equipment =
16,133 + 74,400 = 90,533

Problem 10-15A (45 minutes)

1.

2014				
Jan. 2	**Machine**		**116,900**	
	Cash			**116,900**
	To record purchase of machine.			
3	**Machine**		**4,788**	
	Cash			**4,788**
	To record capital repairs on machine.			
3	**Machine**		**1,512**	
	Cash			**1,512**
	To record installation of machine.			

2.

2014				
Dec. 31	**Depreciation Expense, Machine**		**17,080**	
	Accumulated Depreciation, Machine			**17,080**
	To record depreciation;			
	(123,200 – 20,720)/6 = 17,080.			
2019				
Sept. 30	**Depreciation Expense, Machine**		**12,810**	
	Accumulated Depreciation, Machine			**12,810**
	To record partial year's depreciation;			
	17,080 × 9/12 = 12,810.			

3(a).

30	**Accumulated Depreciation, Machine**[1]		**98,210**	
	Cash		**21,000**	
	Loss on Disposal[2]		**3,990**	
	Machine			**123,200**
	Sold machine for $21,000.			

3(b).

30	**Accumulated Depreciation, Machine**		**98,210**	
	Cash		**27,300**	
	Machine			**123,200**
	Gain on Disposal[3]			**2,310**
	Sold machine for $27,300.			

3(c).

30	**Accumulated Depreciation, Machine**		**98,210**	
	Cash		**25,760**	
	Machine			**123,200**
	Gain on Disposal[4]			**770**
	Received insurance settlement.			

Problem 10-15A *(continued)*

	Deprec. for 2014, 2015, 2016, 2017, and 2018.	Accum. Deprec. for 2019.

1. **Accumulated depreciation = (17,080 × 5 years) + 12,810 = 98,210**

2. **Gain (Loss) = Cash Proceeds – Book Value**
   = 21,000 – (123,200 – 98,210) = (3,990)

3. **Gain (Loss) = Cash Proceeds – Book Value**
   = 27,300 – (123,200 – 98,210) = 2,310

4. **Gain (Loss) = Cash Proceeds – Book Value**
   = 25,760 – (123,200 – 98,210) = 770

Problem 10-16A (15 minutes)

2014			
July 5	**Accumulated Depreciation, Truck**	**6,000**	
	Loss on Disposal*	**10,500**	
	Furniture	**45,100**	
	Truck		**36,000**
	Cash		**25,600**
	To record exchange.		
Dec. 31	**Depreciation Expense, Furniture**	**3,236**	
	Accumulated Depreciation, Furniture		**3,236**
	To record depreciation;		
	(45,100 – 6,268)/6 × 6/12 = 3,236.		

*** Gain (Loss) = Proceeds – Book Value of Assets Given Up**
= 45,100 – [25,600 + (36,000 – 6,000)
= 45,100 – 55,600
= (10,500)

Problem 10-17A (45 minutes)

a. Depreciation expense on first December 31 of each machine's life

2014				
Dec.	**31**	**Depreciation Expense, Machine 15-50[1]**	**6,075**	
		Accumulated Depreciation, Machine 15-50		**6,075**
		To record depreciation.		
2017				
Dec.	**31**	**Depreciation Expense, Machine 17-95[3]**	**22,646**	
		Accumulated Depreciation, Machine 17-95		**22,646**
		To record depreciation.		
2018				
Dec.	**31**	**Depreciation Expense, Machine BT-311[5]**	**77,810**	
		Accumulated Depreciation, Machine BT-311		**77,810**
		To record depreciation.		

b. Purchase/exchange/disposal of each machine.

2014				
Apr.	**1**	**Machine 15-50**	**52,900**	
		Cash		**52,900**
		To record purchase of Machine 15-50.		
2017				
Mar.	**29**	**Machine 17-95 (= assets given up)**	**60,390**	
		Accumulated Depreciation, Machine 15-50[2]	**24,300**	
		Machine 15-50		**52,900**
		Cash		**31,790**
		To record exchange of Machine 15-50.		
2018				
Oct.	**2**	**Machine BT-311**	**537,000**	
		Accumulated Depreciation, Machine 17-95[4]	**36,800**	
		Loss on Disposal	**3,590**	
		Machine 17-95		**60,390**
		Cash		**517,000**
		To record exchange of Machine 17-95.		
2021				
Aug.	**21**	**Cash**	**81,200**	
		Accumulated Depreciation, Machine BT-311[6]	**348,890**	
		Loss on Disposal	**106,910**	
		Machine BT-311		**537,000**
		To record sale of Machine BT-311.		

Problem 10-17A *(continued)*

Calculations:

1. $\frac{52{,}900 - 4{,}300}{6} = 8{,}100/\text{year} \times 9/12 = 6{,}075$

2. Depreciation 2014: 6,075
   2015: 8,100
   2016: 8,100
   2017: 2,025 (8,100 × 3/12)
   Accum. Deprec. 24,300

3. Rate = 2/4 = .50 or 50%
   50% × 60,390 × 9/12 = 22,646 (deprec. for 2017)

4. 50% × (60,390 – 22,646) × 9/12 = 14,154 (deprec. for 2018)
   + 22,646 (deprec. for 2017)
   36,800 (accum. deprec.)

5. (537,000 – 35,000)/200,000 = 2.51/unit
   2018: 31,000 units × 2.51/unit = 77,810

6. Depreciation for Jan. 1/2019 to August 21/2021
   = 108,000 units × 2.51/unit = 271,080
   + 77,810 (2018)
   348,890 (accum. deprec.)

Problem 10-18A (10 minutes)

(a)

2014				
Oct.	1	Copyright	288,000	
		Cash		288,000
		To record purchase of copyright.		

(b)

Dec.	31	Amortization Expense	24,000	
		Accumulated Amortization, Copyright		24,000
		To record amortization of copyright;		
		288,000/3 × 3/12 = 24,000.		

Problem 10-19A (30 minutes)
Part 1

2014				
Dec. 31	**Amortization Expense, Mineral Rights**		**13,000**	
	Accumulated Amortization, Mineral Rights			**13,000**
	To record amortization on the mineral rights;			
	$62,400 ÷ 4 years = $15,600/year × 10/12 = $13,000.			
31	**Depreciation Expense, Equipment**		**51,000**	
	Accumulated Depreciation, Equipment			**51,000**
	To record depreciation on the equipment;			
	$244,800 ÷ 4 years = $61,200/year × 10/12 = $51,000.			
31	**Depreciation Expense, Truck**		**19,875**	
	Accumulated Depreciation, Truck			**19,875**
	To record depreciation on the truck;			
	$95,400 ÷ 4 years = $23,850/year × 10/12 = $19,875.			

Part 2

2017				
Dec. 31	**Accumulated Amortization, Mineral Rights**		**57,200**	
	Loss on Disposal		**5,200**	
	Mineral Rights			**62,400**
	To record disposal of the mineral rights;			
	$13,000 + $15,600 + $15,600 + 13,000 = $57,200			
	accum. amortization.			
31	**Accumulated Depreciation, Equipment**		**224,400**	
	Loss on Disposal		**20,400**	
	Equipment			**244,800**
	To record disposal of the equipment;			
	$51,000 + $61,200 + $61,200 + $51,000 = $224,400			
	accum. depreciation.			
31	**Accumulated Depreciation, Truck**		**87,450**	
	Loss on Disposal		**7,950**	
	Truck			**95,400**
	To record disposal of the truck;			
	$19,875+ $23,850 + $23,850 + $19,875 = $87,450			
	accum. depreciation.			

***Problem 10-20A (30 minutes)**

Part 1

a.

2014				
Jun. 27	**Depreciation Expense, Boat – Motor**		**2,660**	
	Accumulated Depreciation, Boat – Motor			**2,660**
	To update depreciation in 2014 regarding motor being replaced.			
27	**Boat – Motor (new)**		**63,000**	
	Accumulated Depreciation, Boat – Motor		**43,890**[1]	
	Loss on Disposal		**9,310**	
	Boat – Motor (old)			**53,200**
	Cash			**63,000**
	To record replacement of motor.			

b.

Dec. 31	**Depreciation Expense, Boat**	**3,113**[2]	
	Accumulated Depreciation, Boat		**3,113**
	To record revised depreciation for 2014 on the boat (boat body plus motor).		

Calculations:

1. **53,200 ÷ 10 years = 5,320/year; 5,320 × 9/12 = 3,990 depreciation for 2006; 5,320 × 7 years for 2007 thru 2013 = 37,240; 5,320/ year × 6/12 = 2,660 deprec. from Jan. 1/14 to June 27/14; 37,240 + 3,990 + 2,660 = 43,890 accumulated depreciation at June 27, 2014;**

2. **Body: Accumulated depreciation at Dec. 31, 2013:**
   23,800 – 7,000 = 16,800; 16,800 ÷ 15 years = 1,120/year; 1,120 × 9/12 = 840 depreciation for 2006; 1,120 × 7 years (2007 thru 2013) = 7,840; 7,840 + 840 = 8,680
   Revised depreciation at Dec. 31, 2014 (rounded):
   23,800 – 8,680 – 7,000 = 8,120 remaining depreciable cost;
   8,120 ÷ 12.25[1] years = $ 663*

   [1] 20 – 7 9/12 = 12 3/12 or 12.25 years remaining useful life

   Motor: 63,000 – 4,200 = 58,800; 58,800 ÷ 12 years = 4,900/yr × 6/12 = 2,450
   $3,113

***rounded to the nearest whole dollar since depreciation is based on estimates.**

Part 2

Total 2014 depreciation = $2,660 + $3,113 = $5,773

ALTERNATE PROBLEMS

Problem 10-1B (25 minutes)

Part 1

	Land	*Building B*	*Building C*	*Land Imprmnts. B*	*Land Imprmnts. C*
Purchase price*	$307,800	$183,600		$48,600	
Demolition	46,800				
Landscaping	69,000				
New building			$542,400		
New improvements.....					$40,500
Totals	$423,600	$183,600	$542,400	$48,600	$40,500

***Allocation of purchase price:**

	Appraised Value	*Percent of Total*	*Apportioned Cost*
Land	$317,034	57%	$307,800
Building B.....	189,108	34	183,600
Land Improvements B.....	50,058	9	48,600
Totals	$556,200	100 %	$540,000

Part 2

June 1	Land	423,600	
	Building B.....	183,600	
	Building C.....	542,400	
	Land Improvements B.....	48,600	
	Land Improvements C.....	40,500	
	Cash		1,238,700
	To record costs of plant assets.		

Problem 10-2B (25 minutes)

Xentel Interactive
Balance Sheet
December 31

	2014		2013	
Assets				
Current assets:				
Cash	$ 900		$ 2,700	
Accounts receivable	1,800		4,320	
Prepaid insurance	-0-		1,530	
Total current assets		$ 2,700		$ 8,550
Property, plant and equipment:				
Land		68,400		68,400
Machinery	$295,200		$115,200	
Less: Accumulated depreciation	90,000	205,200	82,800	32,400
Building	$225,000		$225,000	
Less: Accumulated depreciation	54,000	171,000	50,400	174,600
Total property, plant and equipment		444,600		275,400
Intangible assets:				
Copyright	$ 7,200		$ 7,200	
Less: Accumulated amortization	1,080	6,120	540	6,660
Total assets		$453,420		$290,610
Liabilities				
Current liabilities:				
Accounts payable	$ 4,320		$ 3,150	
Unearned fees	82,800		5,580	
Total current liabilities		$ 87,120		$ 8,730
Long-term liabilities:				
Notes payable, due in 2019		230,220		55,800
Total liabilities		$317,340		$ 64,530
Equity				
Mason Xentel, capital		136,080*		226,080
Total liabilities and equity		$453,420		$290,610

226,080 – 72,000 + 540,000 – 558,000 = 136,080

Analysis component:
Xentel's assets were mainly financed by equity in 2013. In 2014, Xentel's assets were mainly financed by debt. The increase in the debt financing has weakened the balance sheet as opposed to strengthening it.

Problem 10-3B (30 minutes)

Year	Depreciation Method:		
	Straight-line	Double-declining balance	Units-of-production
2014	(145,000 – 25,000)/5 = 24,000/year × 2/12 = 4,000	Rate = 2/5 = .40 or 40% 145,000 × 40% × 2/12 = 9,667	Rate = (145,000 – 25,000)/100,000 = 1.20/km 1.20 × 5,800 = 6,960
2015	24,000	(145,000 – 9,667) × 40% = 54,133	1.20 × 19,400 = 23,280
2016	24,000	(145,000 – 9,667 – 54,133) × 40% = 32,480	1.20 × 22,850 = 27,420
2017	24,000	(145,000 – 9,667 – 54,133 – 32,480) × 40% = 19,488	1.20 × 25,700 = 30,840
2018	24,000	4,232*	1.20 × 19,980 = 23,976
2019	20,000	0	120,000 – 112,476 = 7,524**
Totals	120,000	120,000	120,000

*Maximum allowed = $4,232 [$120,000 – ($9,667 + $54,133 + $32,480 + $19,488)]

**Maximum allowed = $7,524 [$120,000 – ($6,960 + $23,280 + $27,420 + $30,840 + $23,976)]

Problem 10-4B (30 minutes)

Year	Depreciation Method:		
	Straight-line	Double-declining balance	Units-of-production
2014	(145,000 – 25,000)/5 = 24,000/year × 6/12 = 12,000	Rate = 2/5 = .40 or 40% 145,000 × 40% × 6/12 = 29,000	Same as Problem 10-3B; Units-of-production is usage based and not affected by time 6,960
2015	24,000	(145,000 – 29,000) × 40% = 46,400	1.20 × 19,400 = 23,280
2016	24,000	(145,000 – 29,000 – 46,400) × 40% = 27,840	1.20 × 22,850 = 27,420
2017	24,000	(145,000 – 29,000 – 46,400 – 27,840) × 40% = 16,704	1.20 × 25,700 = 30,840
2018	24,000	56*	1.20 × 19,980 = 23,976
2019	12,000	0	120,000 – 112,476 = 7,524**
Totals	120,000	120,000	120,000

* Maximum allowed = $56 [$120,000 – ($29,000 + $46,400 + $27,840 + $16,704)]

** Maximum allowed = $7,524 [$120,000 – ($6,960 + $23,280 + $27,420 + $30,840 + $23,976)]

Problem 10-5B (30 minutes)

	2014	2015	2016
Part 1. Double-declining balance method			
Machinery	$588,000	$588,000	$588,000
Less: Accumulated depreciation	58,800	164,640	249,312
Year-end book value	$529,200	$423,360	$338,688
Depreciation expense for the year[1]	$58,800	$105,840	$84,672
Part 2. Straight-line method			
Machinery	$588,000	$588,000	$588,000
Less: Accumulated depreciation	26,600	79,800	133,000
Year-end book value	$561,400	$508,200	$455,000
Depreciation expense for the year[2]	$26,600	$53,200	$53,200

1. Rate = 2/10 = .20 or 20%
   2014: 20% × 588,000 × 6/12 = 58,800
   2015: 20% × (588,000 – 58,800) = 105,840
   2016: 20% × (588,000 – 58,800 – 105,840) = 84,672

2. (588,000 – 56,000)/10 = 53,200 × 6/12 = 26,600

Problem 10-6B (15 minutes)

Part 1.

2015				
Dec.	**31**	**Depreciation Expense, Machinery**	**55,000**	
		Accumulated Depreciation, Machinery		**55,000**
		To record annual depreciation;		
		(500,000 – 60,000)/8 = 55,000		
	31	**Depreciation Expense, Equipment**	**126,667**	
		Accumulated Depreciation, Equipment		**126,667**
		To record annual depreciation;		
		Rate = 2/4 = .50 or 50%;		
		50% × (1,280,000 – 1,026,667) = 126,667		

Part 2.

WESTFAIR FOODS
Partial Balance Sheet
December 31, 2015

Property, plant and equipment:		
Machinery	**$ 500,000**	
Less: Accumulated depreciation	**385,000**	**$115,000**
Equipment	**1,280,000**	
Less: Accumulated depreciation	**1,153,334**	**126,666**
Total property, plant and equipment		**$241,666**

Problem 10-7B (30 minutes)

Part 1

	Market Value	*Percentage of Total*	*Apportioned Cost*
Building	$ 663,300	55%	$ 574,200
Land	397,980	33	344,520
Land improvements	120,600	10	104,400
Truck	24,120	2	20,880
Total	$1,206,000	100%	$1,044,000

2014				
Sept. 30	Building		574,200	
	Land		344,520	
	Land Improvements		104,400	
	Truck		20,880	
		Cash		1,044,000
	To record asset purchases.			

Part 2 **2014 straight-line depreciation on building:**

($574,200 – 45,000)/15 × 3/12 = $8,820

Part 3 **2014 double-declining-balance depreciation on land improvements:**

Rate = 2/8 = .25 or 25%
$104,400 × 25% × 3/12 = $6,525

Problem 10-8B (45 minutes)

Year	Straight-Line[a]	Units-of-Production[b]	Double-Declining-Balance[c]
2014	$ 31,304	$ 32,928	$ 72,800
2015	46,956	51,744	80,080
2016	46,956	47,040	48,048
2017	46,956	44,688	28,829
2018	46,956	37,240	5,023*
2019	15,652	21,140	0
Totals	$234,780	$234,780	$234,780

[a]**Straight- line:**

Cost per year = (273,000 – 38,220)/5 years = $46,956 per year × 8/12 = $31,304 for 2014

= $46,956/year × 4/12 = $15,652 for 2019

[b]**Units-of-production:**

Cost per unit = (273,000 – 38,220)/168,000 units = $1.40 per unit (rounded)

Year	Units	Unit Cost	Depreciation
2014	23,520	$1.40	$ 32,928
2015	36,960	1.40	51,744
2016	33,600	1.40	47,040
2017	31,920	1.40	44,688
2018	26,600	1.40	37,240
2019	30,940	1.40	21,140*
Total			$234,780

***Take only enough depreciation in Year 2019 to reach the maximum accumulated depreciation of $234,780.**

[c]**Double-declining-balance:**

Rate = 2/5 = .40 or 40%

2014: 40% × 273,000 × 8/12 = 72,800

2015: 40% × (273,000 – 72,800) = 80,080

2016: 40% × (273,000 – 72,800 – 80,080) = 48,048

2017: 40% × (273,000 – 72,800 – 80,080 – 48,048) = 28,829

2018: 234,780 – 229,757* = 5,023

***Take only enough depreciation in Year 2018 to reach the maximum accumulated depreciation of $234,780.**

Problem 10-9B (40 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost[1]	Residual	Life	Balance of Accum. Deprec. Apr. 30, 2014	Depreciation Expense for 2015	Balance of Accum. Deprec. Apr. 30, 2015
Equipment	Oct. 3/11	Straight-line	$ 62,400	$ 16,800	20 yr.	$ 5,700[1]	$ 2,280[2]	$ 7,980[3]
Machinery	Oct. 28/11	Units-of-production	540,000	180,000	100,000 units	73,332[4]	38,124[5]	111,456[6]
Tools	Nov. 3/11	Double-declining balance	64,000	15,000	5 yr.	45,568[7]	3,432[8]	49,000[9]

1. (62,400 – 16,800)/20 = 2,280/year × 2 6/12 = 5,700
2. (62,400 – 16,800)/20 = 2,280/year
3. 5,700 + 2,280 = 7,980
4. Rate = (540,000 – 180,000)/100,000 = 3.60/unit;
   2012: 940 × 3.60 = 3,384
   2013: 10,150 × 3.60 = 36,540
   2014: 9,280 × 3.60 = 33,408
   73,332
5. 10,590 × 3.60 = 38,124
6. 73,332 + 38,124 = 111,456
7. Rate = 2/5 = .40 or 40%
   2012: 40% × 64,000 × 6/12 = 12,800
   2013: 40% × (64,000 – 12,800) = 20,480
   2014: 40% × (64,000 – 12,800 – 20,480) = 12,288
   Accumulated depreciation at Apr. 30, 2014 = $45,568
8. 2015: (64,000 – 15,000) – 45,568 = 3,432
9. 45,568 + 3,432 = 49,000

Problem 10-10B (20 minutes)

2014				
June	**26**	**Truck**	**71,820**	
		Cash		**71,820**
		To record purchase of new truck;		
		$68,400 + $3,420 freight costs.		
	27	**Truck**	**3,780**	
		Cash		**3,780**
		To record installation of special racks.		
Dec.	**31**	**Depreciation Expense, Truck[1]**	**7,200**	
		Accumulated Depreciation, Truck		**7,200**
		To record depreciation for half-year.		
2015				
Jan.	**5**	**No entry.**		
Mar.	**15**	**Repair and Maintenance Expense**	**660**	
		Cash		**660**
		To record repairs.		
Dec.	**31**	**Depreciation Expense, Truck[2]**	**10,600**	
		Accumulated Depreciation, Truck		**10,600**
		To record revised depreciation		

1. [(71,820 + 3,780) – 18,000]/4 × 6/12 = 7,200

2. [(71,820 + 3,780) – 7,200 – 10,100]/(6 – .5 = 5.5) = 10,600

Problem 10-11B (40 minutes)

2015				
Dec.	**31**	**Depreciation Expense, Building[1]**	**1,620**	
		Accumulated Depreciation, Building		**1,620**
		To record annual depreciation.		
	31	**Depreciation Expense, Equipment[2]**	**7,320**	
		Accumulated Depreciation, Equipment		**7,320**
		To record annual depreciation.		

1. $\dfrac{\text{Cost} - \text{Accumulated Depreciation} - \text{Residual}}{20} = \dfrac{274{,}800 - 134{,}400 - 108{,}000}{20} = 1{,}620$

2. $\dfrac{\text{Cost} - \text{Accumulated Depreciation} - \text{Residual}}{10} = \dfrac{117{,}600 - 38{,}400 - 6{,}000}{10} = 7{,}320$

Problem 10-12B (40 minutes)

2014				
Jan. 4	**Warehouse – Furnace (new)**	**39,000**		
	Accumulated Depreciation, Warehouse – Furnace	**18,153[1]**		
	Loss on Disposal	**8,847**		
	Warehouse – Furnace (old)		**27,000**	
	Accounts Payable		**39,000**	
	To record installation of new warehouse furnace.			

***Calculations*:**

1. 2009 Deprec.: 27,000 × 2/10 = 5,400;
2010 Deprec.: (27,000 – 5,400) × 2/10 = 4,320;
2011 Deprec.: (27,000 – 9,720) × 2/10 = 3,456;
2012 Deprec.: (27,000 – 13,176) × 2/10 = 2,765;
2013 Deprec.: (27,000 – 15,941) × 2/10 = 2,212;
Accum. Deprec. Dec. 31, 2013 = 5,400 + 4,320 + 3,456 + 2,765 + 2,212 = 18,153.

Part 2

Windows	**51,750 ÷ 15 =**	**$ 3,450**
Doors	**105,000 ÷ 20 = 5,250/yr;** **5,250/yr × 5 yrs = 26,250 Accum. Dep.;** **105,000 – 26,250 = 78,750 book value;** **78,750 – 23,100 = 55,650 revised depreciable value;** **55,650 ÷ (12 yrs – 5 yrs = 7 yrs) =**	**7,950**
Roofing	**43,500 ÷ 10 =**	**4,350**
Siding	**54,000 ÷ 25 =**	**2,160**
Framing/Walls	**222,000 – 60,000 = 162,000; 162,000 ÷ 30 =**	**5,400**
Furnace	**39,000 × 2/16 =**	**4,875**
Misc.	**Maximum allowable depreciation reached[1]**	**-0-**
Total depreciation expense to be recorded on the warehouse for 2014 =		**$28,185**

1. 2009: 61,500 × 2/5 = 24,600;
2010: (61,500 – 24,600) × 2/5 = 14,760;
2011: (61,500 – 39,360) × 2/5 = 8,856;
2012: (61,500 – 48,216) × 2/5 = 5,314;
2013: (61,500 – 53,530) × 2/5 = 3,188 which exceeds max. allowable accumulated depreciation of 54,000 therefore the maximum that can be recorded in 2013 is 54,000 – 53,530 = 470 with no depreciation recorded in any subsequent years.

Problem 10-13B (40 minutes)

Part 1

2014				
Mar. 31	**Impairment Loss**		**26,000**	
	Computer Equipment			**26,000**
	To record impairment loss on computer equipment.			
31	**Impairment Loss**		**23,750**	
	Machinery			**23,750**
	To record impairment loss on machinery.			

Calculations:

	Book Value	Recoverable Value	Impairment Loss
Computer equipment	**$ 32,250**	**$ 6,250**	**$26,000**
Land	**145,000**	**172,500**	**NA**
Machinery	**88,750**	**65,000**	**23,750**
Warehouse	**173,500**	**243,750**	**NA**

Problem 10-13B (*concluded*)

Part 2

La Mancha Enterprises
Balance Sheet
March 31, 2014

Assets			
Current assets:			
Cash		$ 35,000	
Accounts receivable	$ 57,500		
Less: Allowance for doubtful accounts	6,000	51,500	
Office supplies		4,875	
Total current assets			$ 91,375
Property, plant and equipment:			
Land		$145,000	
Warehouse	$ 460,000		
Less: Accumulated depreciation	286,500	173,500	
Machinery	$217,500[1]		
Less: Accumulated depreciation	152,500	65,000	
Computer equipment	$ 46,500[2]		
Less: Accumulated depreciation	40,250	6,250	
Total property, plant and equipment			389,750
Total assets			$481,125
Liabilities			
Current liabilities:			
Accounts payable	$ 14,750		
Salaries payable	33,750		
Current portion of long-term mortgage	59,550		
Total current liabilities		$108,050	
Long-term liabilities:			
Mortgage payable, less current portion		34,200	
Total liabilities			$142,250
Equity			
Joy La Mancha, capital			338,875[3]
Total liabilities and equity			$481,125

Calculations:

1. **241,250 cost – 23,750 impairment loss = 217,500**
2. **72,500 cost – 26,000 impairment loss = 46,500**
3. **407,875 adjusted capital balance + 1,227,500 revenues – 1,246,750 expenses – 26,000 impairment loss, computer equip. – 23,750 impairment loss, machinery. = 338,875 post-closing capital balance**

Analysis component:

The recording of an impairment loss causes expenses to increase which in turn causes net income to decrease. Decreases in income cause equity on the balance sheet to decrease.

Problem 10-14B (45 minutes)

Part 1

2014				
Mar.	**2**	**Depreciation Expense, Van**	**1,575**	
		Accumulated Depreciation, Van[1]		**1,575**
		To record depreciation on van for 2014.		
	2	**Cash**	**17,920**	
		Accumulated Depreciation, Van[1]	**42,175**	
		Loss on Disposal	**4,305**	
		Van		**64,400**
		To record sale of van.		

Part 2

Aug.	**27**	**Depreciation Expense, Machinery**	**12,642**	
		Accumulated Depreciation, Machinery[2]		**12,642**
		To record depreciation on machinery for 2014.		
	27	**Cash**	**95,718**	
		Accumulated Depreciation, Machinery[2]	**33,082**	
		Machinery		**128,800**
		To record sale of machinery.		

Part 3

June	**29**	**Depreciation Expense, Equipment**	**3,500**	
		Accumulated Depreciation, Equipment[3]		**3,500**
		To record depreciation on equipment for 2014.		
	29	**Cash**	**27,720**	
		Accumulated Depreciation, Equipment[3]	**48,300**	
		Gain on Disposal		**420**
		Equipment		**75,600**
		To record sale of equipment.		

Calculations:

1. Depreciation from Feb. 1/14 to Mar. 2/14:

$$\frac{64{,}400 - 40{,}600 - 9{,}800}{40{,}000} = \$0.35/\text{km} \times 4{,}500\ \text{km} = 1{,}575$$

+ 40,600

42,175

(calculations continued on next page)

Problem 10-14B (*concluded*)

2. Depreciation from Feb. 1/14 to Aug. 27/14:

128,800 – 20,440 = 108,360 Book Value
Rate = 2/10 = .20 or 20%

108,360 × 20% × 7/12 =	**12,642**
	+ 20,440
	33,082

3. Depreciation from Feb. 1/14 to June 29/14:

75,600 – 44,800 – 5,600 × 5/12 =	**3,500**
3	**+ 44,800**
	48,300

Problem 10-15B (60 minutes)

Part 1

2014				
Jan.	**1**	**Machine**	**156,000**	
		Cash		**156,000**
		To record purchase of machine.		
	2	**Machine**	**4,068**	
		Cash		**4,068**
		To record capital repairs on machine.		
	2	**Machine**	**5,760**	
		Cash		**5,760**
		To record installation of machine.		

Part 2

Dec.	**31**	**Depreciation Expense, Machine**	**20,604**	
		Accumulated Depreciation, Machine		**20,604**
		To record depreciation;		
		(165,828 – 21,600)/7 = 20,604		
2019				
Apr.	**1**	**Depreciation Expense, Machine**	**5,151**	
		Accumulated Depreciation, Machine		**5,151**
		To record partial year's depreciation;		
		20,604 × 3/12 = 5,151.		

Problem 10-15B (*concluded*)

Part 3(a)

Apr. 30	Accumulated Depreciation, Machine[1]	108,171	
	Cash	36,000	
	Loss on Disposal[2]	21,657	
	Machine		165,828
	Sold machine for $36,000.		

Part 3(b)

30	Accumulated Depreciation, Machine	108,171	
	Cash	60,000	
	Machine		165,828
	Gain on Disposal[3]		2,343
	Sold machine for $60,000.		

Part 3(c)

30	Accumulated Depreciation, Machine	108,171	
	Cash	24,000	
	Loss on Disposal[4]	33,657	
	Machine		165,828
	Received insurance settlement.		

Calculations:

Depreciation

1. **Accumulated depreciation = (20,604 × 5 years) + 5,151 = 108,171**

(Deprec. for 2014, 2015, 2016, 2017, 2018 = 20,604 × 5 years; Deprec. for 2019 = 5,151)

2. **Gain (Loss) = Cash Proceeds – Book Value**
   = 36,000 – (165,828 – 108,171) = (21,657)

3. **Gain (Loss) = Cash Proceeds – Book Value**
   = 60,000 – (165,828 – 108,171) = 2,343

4. **Gain (Loss) = Cash Proceeds – Book Value**
   = 24,000 – (165,828 – 108,171) = (33,657)

Problem 10-16B (20 minutes)

2014				
Aug. 31	**Accumulated Depreciation, Furniture**		**25,800**	
	Computer Equipment		**72,600**	
	Furniture			**42,000**
	Cash			**56,400**
	To record exchange.			
Sept. 4	**Computer Equipment**		**11,760**	
	Cash			**11,760**
	Addition of capital expenditures.			
Dec. 31	**Depreciation Expense, Computer Equipment**		**7,240**	
	Accumulated Depreciation, Computer Equipment			**7,240**
	To record depreciation;			
	[(72,600 + 11,760) – 19,200] /3 × 4/12.			

*** Assets Given up = Cash Paid + Book Value of Assets Given Up**
= 56,400 + [42,000 – 25,800]
= 56,400 + 16,200 = 72,600

Problem 10-17B (45 minutes)

1. Depreciation expense on first December 31 of each machine's life

2014			
Dec. 31	**Depreciation Expense, Machine 366-90[1]**	**10,800**	
	Accumulated Depreciation, Machine 366-90		**10,800**
	To record depreciation.		
2016			
Dec. 31	**Depreciation Expense, Machine 366-91[3]**	**8,325**	
	Accumulated Depreciation, Machine 366-91		**8,325**
	To record depreciation.		
2019			
Dec. 31	**Depreciation Expense, Machine 367-11[5]**	**7,155**	
	Accumulated Depreciation, Machine 367-11		**7,155**
	To record depreciation.		

2. Purchase/exchange/disposal of each machine

2014			
May 1	**Machine 366-90**	**72,900**	
	Cash		**72,900**
	To record purchase of Machine 366-90.		
2016			
Aug. 5	**Machine 366-91 (= to assets given up)**	**49,950**	
	Accumulated Depreciation, Machine 366-90[2]	**36,450**	
	Machine 366-90		**72,900**
	Cash		**13,500**
	To record exchange of Machine 366-90.		
2019			
Feb. 1	**Cash**	**13,500**	
	Accumulated Depreciation, Machine 366-91[4]	**35,465**	
	Loss on Disposal	**985**	
	Machine 366-91		**49,950**
	To record sale of Machine 366-91.		
1	**Machine 367-11**	**79,650**	
	Cash		**79,650**
	To record purchase of Machine 367-11.		
2020			
Oct. 3	**Cash**	**54,000**	
	Accumulated Depreciation, Machine 367-11[6]	**17,888**	
	Loss on Disposal	**7,762**	
	Machine 367-11		**79,650**
	To record sale of Machine 367-11.		

Problem 10-17B *(continued)*

Calculations:

1. $\frac{72{,}900 - 8{,}100}{4} = 16{,}200/\text{year} \times 8/12 = 10{,}800$

2. Depreciation 2014: 10,800
   2015: 16,200
   2016: 9,450 (16,200 × 7/12)
   Accum. Deprec. 36,450

3. Rate = 2/5 = .40 or 40%
   40% × 49,950 × 5/12 = 8,325

4.

2016:	8,325
2017: 40% × (49,950 – 8,325) =	16,650
2018: 40% × (49,950 – 8,325 – 16,650) =	9,990
2019: 40% × (49,950 – 8,325 – 16,650 – 9,990) × 1/12 =	500
	35,465

5. (79,650 – 8,100)/75,000 = $0.954/unit

   2019: 7,500 units × 0.954/unit = 7,155

6. Depreciation for Jan. 1/2020 to Oct. 3/2020:

= 11,250 units × 0.954/unit =	10,733
	7,155
Accum. Deprec.	17,888

Problem 10-18B (20 minutes)

Part 1

a.

2014			
Feb. 3	**Patent**	**220,800**	
	Cash		**220,800**
	To record purchase of patent.		
b.			
Dec. 31	**Amortization Expense, Patent**	**40,480**	
	Accumulated Amortization, Patent		**40,480**
	To record amortization on patent;		
	220,800 ÷ 5 = 44,160/year;		
	44,160 x 11/12 = 40,480.		

Part 2

Abacus Software Group
Partial Balance Sheet
December 31, 2014

Assets			
Current assets:			
Cash		**$103,200**	
Accounts receivable (net)		**277,200**	
Merchandise inventory		**135,600**	
Total current assets			**$ 516,000**
Property, plant and equipment:			
Land		**$110,400**	
Building	**$595,200**		
Less: Accumulated depreciation, building	**189,000**	**406,200**	
Equipment	**$477,600**		
Less: Accumulated depreciation, equip.	**259,200**	**218,400**	
Total property, plant and equipment			**735,000**
Intangible assets:			
Patent		**$220,800**	
Less: Accumulated amortization, patent		**40,480**	**180,320**
Total assets			**$1,431,320**

Problem 10-19B (30 minutes)

Part 1

2014				
Dec. 31	**Amortization Expense, Patent**		**9,625**	
	Accumulated Amortization, Patent			**9,625**
	To record amortization on the patent;			
	$210,000 ÷ 20 years = $10,500/yr × 11/12 = $9,625.			
31	**Depreciation Expense, Equipment**		**16,170**	
	Accumulated Depreciation, Equipment			**16,170**
	To record depreciation on the equipment;			
	$320,600 - $56,000 = $264,600;			
	$264,600 ÷ 15 years = $17,640/yr × 11/12 = $16,170.			
31	**Depreciation Expense, Computer**		**14,630**	
	Accumulated Depreciation, Computer			**14,630**
	To record depreciation on the computer;			
	$79,800 ÷ 5 years = $15,960/yr × 11/12 = $14,630.			

Part 2

2018				
Jan. 27	**Accumulated Amortization, Patent**		**42,000**	
	Loss on Disposal		**168,000**	
	Patent			**210,000**
	To record disposal of the patent;			
	4 yrs × $10,500/yr = $42,000 accum. amort.			
27	**Accumulated Depreciation, Equipment**		**70,560**	
	Cash		**252,000**	
	Gain on Disposal			**1,960**
	Equipment			**320,600**
	To record disposal of the equipment;			
	4 yrs × $17,640/yr = $70,560 accum. amort.			
27	**Accumulated Depreciation, Computer**		**63,840**	
	Loss on Disposal		**15,960**	
	Computer			**79,800**
	To record disposal of the computer;			
	4 yrs × $15,960/yr = $63,840 accum. amort.			

***Problem 10-20B (40 minutes)**

1.a.	**2014**			
	Oct. 3	**Depreciation Expense, Equipment – Fan**	**3,840**	
		Accum. Deprec., Equipment – Fan		**3,840**
		To update depreciation on replaced fan from Jan 1/14 to Oct 3/14.		
	3	**Cash**	**8,400**	
		Accum. Deprec., Equipment – Fan	**28,800[1]**	
		Equipment – Fan (old)		**32,400**
		Gain on Disposal		**4,800**
		To record sale of replaced fan on the equipment.		
	3	**Equipment – Fan (new)**	**36,000**	
		Cash		**36,000**
		To record purchase of replacement fan on equipment.		
1.b.	**Dec. 31**	**Depreciation Expense, Equipment**	**22,370[2]**	
		Accum. Deprec., Equipment		**22,370**
		To record depreciation for 2014 on the equipment (sum of all components).		

Calculations:

1. **32,400 – 3,600 = 28,800; 28,800 ÷ 5 yrs = 5,760/yr;**
   5,760 × 4/12 = 1,920 deprec. for 2009;
   5,760/yr × 4 yrs (2010 to 2013 inclusive) = 23,040;
   5,760/yr × 8/12 (max depreciation to depreciate 5 years) = 3,840 deprec. from Jan. 1/14 to Oct. 3/14;
   1,920 + 23,040 + 3,840 = 28,800 accum. deprec. at Oct. 3/14.

***Problem 10-20B (*continued*)**

2.	**Metal Frame**	**144,000 – 36,000 =108,000; 108,000 ÷ 20 yrs = 5,400/yr; 5,400/yr × 4/12 = 1,800 deprec. for 2009; 5,400/yr × 4 yrs (2010 to 2013 inclusive) = 21,600; 1,800 + 21,600 = 23,400 accum. deprec. at Dec. 31/13; Revised deprec. = 144,000 – 23,400 accum. deprec. = 120,600 remaining book value; 120,600 – (36,000 – 12,000 = 24,000 residual value) = 96,600 remaining depreciable cost; 96,600 ÷ 20 yrs =**	**$ 4,830**
	Engine	**2009: 96,000 × 2/10 × 4/12 = 6,400 2010: 96,000 – 6,400 = 89,600 × 2/10 = 17,920 2011: 89,600 – 17,920 = 71,680 × 2/10 = 14,336 2012: 71,680 – 14,336 = 57,344 × 2/10 = 11,469 2013: 57,344 – 11,469 = 45,875 × 2/10 = 9,175 2014: 45,875 – 9,175 = 36,700 × 2/10 =**	**7,340**
	New Fan	**36,000 – 4,800 = 31,200; 31,200 ÷ 5 yrs = 6,240 × 3/12 =**	**1,560**
	Conveyor System	**126,000 – 39,600 = 86,400; 86,400 ÷ 10 yrs =**	**8,640**
	Misc. Parts	**2009: 27,600 × 2/5 × 4/12 = 3,680 2010: 27,600 – 3,680 = 23,920 × 2/5 = 9,568 2011: 23,920 – 9,568 = 14,352 × 2/5 = 5,741 2012: 14,352 – 5,741 = 8,611 × 2/5 = 3,444 2013: 8,611 – 3,444 = 5,167 × 2/5 = 2,067 which exceeds max.; maximum that can be taken in 2013 is 5,167 – 4,800 = 367; therefore, no depreciation is taken in 2014**	**-0-**
			$22,370

Part 2
Total 2014 depreciation = $3,840 + $22,370 = $26,210

ANALYTICAL AND REVIEW PROBLEMS

A&R Problem 10-1

The following points should be set out in the report:

1. **Assets on which depreciation was charged were purchased for use in the business and not for resale. Therefore, the fact that they may be sold for more than cost is not relevant since, in keeping with the cost principle, PPE are maintained in the accounting records at cost.**
2. **Because these assets are subject to both physical and economic (obsolescence) deterioration, they have a limited useful life span, however long it may be, and their cost, less any residual value, must be allocated over their useful life.**
3. **Maintenance expenditures maintain these assets in a properly functioning order. They, however, do not eliminate the fact of physical and economic deterioration.**
4. **Not charging periodic depreciation is in violation of the matching principle and results in an understatement of expenses and overstatement of net income.**
5. **Depreciation is a process of allocation not of valuation.**

ETHICS CHALLENGE

1. **When managers acquire new assets a variety of decisions relative to depreciation must be made. The asset must be assigned a useful life and residual value, and a method of depreciation must be chosen.**

2. **It is true that managers can choose a useful life and residual value based on an estimate. However, the estimated life should be the manager's realistic expectation of how long the asset will actually be used in the operations of the business. The estimated residual value should not be arbitrary; it should reflect expectations of the recoverable value of the asset at the end of its useful life to the business, even if it is zero. The depreciation method should reflect a systematic allocation of the asset's cost based on how the asset is actually consumed by the business.**

3. **By selecting a useful life that is significantly greater than what is realistic in combination with an unreasonably high residual value, the profit margin will be overstated since depreciation expense will be greatly understated.**

FOCUS ON FINANCIAL STATEMENTS

FFS 10-1
a.

Cost Information						Depreciation/Amortization		
Description	Date of Purchase	Deprec. Method	Original Cost	Residual	Life	Accum. Balance Dec. 31, 2013	Expense for 2014	Accum. Balance
Land	July 3/11		$280,000			n/a	n/a	n/a
Building	July 3/11	S/L	454,000	$40,000	15 yr.	$ 69,000[1]	$46,000[2]	$115,000
Machinery	Mar 20/11	Units	150,000	30,000	250,000	72,960[3]	31,200[4]	104,160
Truck	Mar 01/11	S/L	298,800	30,000	7 yr.	108,800[5]	38,400[6]	147,200
Furniture	Feb 18/11	DDB	24,000	3,000	5 yr.	18,240[7]	576[8]	-0-[10]
Patent	Nov 7/12	S/L	103,800	-0-	5 yr.	24,220[9]	20,760[9]	44,980
Office Equip.	Apr 10/14	DDB	65,143[11]	10,000	4 yr.	-0-	24,429[12]	24,429
Furniture	Apr 10/14	DDB	48,857[11]	4,000	5 yr.	-0-	14,657[13]	14,657

Calculations:

1. (454,000 – 40,000)/15 = 27,600/year x 6/12 = 13,800 for 2011
   27,600 for 2012
   27,600 for 2013
   69,000 Accum. deprec. at Dec. 31/13

2. (454,000 – 40,000 – 69,000)/(10 – 2.5 = 7.5) = 46,000 for 2014

3. (150,000 – 30,000)/250,000 = $0.48/unit x 45,000 = 21,600 for 2011
   x 55,000 = 26,400 for 2012
   x 52,000 = 24,960 for 2013
   72,960 Accum. deprec. at Dec. 31/13

4. $0.48/unit x 65,000 = 31,200 for 2014

5. (298,800 – 30,000)/7 = 38,400/year x 10/12 = 32,000 for 2011
   38,400 for 2012
   38,400 for 2013
   108,800 Accum. deprec. Dec. 31/13

6. (298,800 – 30,000)/7 = 38,400/year depreciation for 2014

FFS 10-1 (*continued*)

7. 24,000 x 2/5 x 10/12 = 8,000 for 2011
(24,000 – 8,000) x 2/5 = 6,400 for 2012
24,000 – (8,000 + 6,400)] x 2/5 = 3,840 for 2013
18,240 Accum. deprec. Dec. 31/13

8. [24,000 – (8,000 + 6,400 + 3,840)] x 2/5 x 3/12 = 576 for 2014

9. (103,800 – 0)/5 = 20,760/year x 2/12 = 3,460 for 2012
20,760 for 2013
24,220 Total dep. taken to Dec. 31/13

10. This has a -0- balance at December 31, 2011 because the asset was disposed of (donated to charity).

11.

	Appraised Values	Ratio	Cost Allocation
Office Equipment	96,000	96/168 x 114,000	= 65,143
Furniture	72,000	72/168 x 114,000	= 48,857
Totals	168,000		114,000

12. 65,143 x 2/4 x 9/12 = 24,429 for 2014

13. 48,857 x 2/5 x 9/12 = 14,657 for 2014

FFS 10-1 (*continued*)

b.

Times TeleCom
Income Statement
For Year Ended December 31, 2014

Revenues:		
Fees earned		**$950,000**
Expenses:		
Salaries expense	**$294,000**	
Depreciation expense	**155,262**	
Amortization expense	**20,760**	
Insurance expense	**30,000**	
Loss on disposal of furniture	**5,184**	
Total expenses		**505,206**
Net income		**$444,794**

Times TeleCom
Statement of Changes in Equity
For Year Ended December 31, 2014

Susan Times, capital, January 1, 2014	**$421,180**
Add: Net income	**444,794**
Total	**865,974**
Less: Withdrawals by owner	**204,000**
Susan Times, capital, December 31, 2014	**$661,974**

FFS 10-1 (*continued*)

1.

Times TeleCom
Balance Sheet
December 31, 2014

Assets			
Current assets:			
Cash		$ 30,000	
Accounts receivable		72,000	
Prepaid insurance		15,600	
Total current assets			$ 117,600
Property, plant and equipment:			
Land		$280,000	
Building	$454,000		
Less: Accumulated depreciation	115,000	339,000	
Machinery	$150,000		
Less: Accumulated depreciation	104,160	45,840	
Truck	$298,800		
Less: Accumulated depreciation	147,200	151,600	
Office equipment	$ 65,143		
Less: Accumulated depreciation	24,429	40,714	
Furniture	$ 48,857		
Less: Accumulated depreciation	14,657	34,200	
Total property, plant and equipment			891,354
Intangible assets:			
Patent	$103,800		
Less: Accumulated Amortization	44,980		58,820
Total assets			$1,067,774
Liabilities			
Current liabilities:			
Accounts payable	$ 68,000		
Unearned revenue	53,800		
Total current liabilities		$ 121,800	
Long-term liabilities:			
Notes payable, due 2017		284,000	
Total liabilities			$ 405,800
Equity			
Susan Times, capital			661,974
Total liabilities and equity			$1,067,774

FFS 10-2

Part 1

NOTE: Both Danier Leather and WestJet use the term 'amortization' instead of 'depreciation' in the statements referenced in this question. To be consistent with the textbook, the answers use the term 'depreciation'.

a. The $15,061 (thousand) represents the book value of the PPE. The June 25, 2011, book value is the $43,741 (thousand) total cost of the PPE assets less the $28,680 (thousand) total accumulated depreciation of the PPE. (*Note to instructor: Point out to students that this additional information — cost and accumulated depreciation — is found in Danier's Note 3 of the financial statements.*)

b. The full disclosure principle requires financial statements to report all relevant information about the operations and financial position of the entity. In conformance with the full disclosure principle, information in addition to the $15,061 (thousand) book value is reported in Note 1(f) (depreciation methods) and Note 3 (cost, accumulated depreciation, and book value).

c. The depreciation expense for the year ended June 25, 2011, was $4,041 (thousand). Although depreciation expense typically appears on the income statement, Danier does not detail it there but these amounts do appear on the statement of cash flows and in Note 7.

Part 2

a. Shopper's property and equipment at December 31, 2011 represent 24.21% of total assets calculated as ($1,767,543,000/$7,300,310,000) x 100.

b. WestJet's property and equipment at December 31, 2011 is 55.02% of total assets calculated as ($1,911,227,000/$3,473,678,000) x 100.

c. WestJet and Shoppers operate in different industries: WestJet is an airline while Shoppers operates drug stores. As such, WestJet has relatively little inventory in comparison to Shoppers. Shoppers' inventory at December 31, 2011 is $2,042,302 thousand or 27.98% of total assets (calculated as $2,042,302,000/$7,300,310,000 x 100). Shoppers' inventory plus property and equipment represent half of its total assets while WestJet's property and equipment represent half of its assets. Shoppers needs a large stock of inventory held in stores (property and equipment) in order to operate. WestJet primarily needs property and equipment (planes) to operate its business. Therefore, it seems logical that the mix of assets would be different for each company.

2. CRITICAL THINKING QUESTIONS

CT 10-1

Note to instructor: Student responses will vary and therefore the answer here is only suggested and not inclusive of all possibilities; it is presented in point form for brevity.

Problem:

- **Taking the perspective of both the external and internal auditors, there is a problem with how a number of revenue expenditures were recorded as capital expenditures.**

Goal:*

- **To identify which transactions were recorded incorrectly, correct them, and restate net income on the income statement and restate assets and equity on the balance sheet.**
- **Another goal, from the perspective of the auditor, would be to bring these issues to the attention of the board of directors for their action because there may be ethical concerns regarding the behaviour of the business manager (bonus is tied to income so he/she may be manipulating the recording of transactions to maximize income).**

Principles:

- **The matching principle has been violated; it requires costs to be allocated or matched to the period in which it helped generate revenues.**
- **The prudence principle was also violated; it states that assets and income should never be overstated.**
- **Another GAAP requires consideration: materiality. If the misstatements are not material in nature (not significant in dollar amount so that the decisions of shareholders would not have been affected), the conclusions are affected. Therefore, we must look at the numbers to determine whether materiality has been violated or not.**

CT 10-1 (*continued*)

Facts:
as stated in the mini case

—The insurance was incorrectly debited to the Truck account; it should have been debited to a current asset account: Prepaid Insurance. The result of this error is an overstatement of net income in 2012 of $7,800 (36,000/24 months = 1,500/month insurance used x 10 months = 15,000 for 2012 vs. 36,000/5 yrs useful life = 7,200; 15,000 – 7,200 = 7,800). 2012 net income is not known but if it is assumed that it approximates 2013 net income as reported ($78,000), then the $7,800 overstatement of net income in 2012 is material in nature since it approximates 10%.

The net income in 2013 would also have been materially overstated; by $10,800 (1,500 insurance expense per month x 12 months used = 18,000 – depreciation of 7,200 = 10,800). Net income in 2014 would have been understated by $4,200 (7,200 depreciation – 3,000 insurance used = 4,200). It is unclear from the information provided how the insurance renewal was treated: as a capital or revenue expenditure; this would have affected the impact of the misstatement in 2014. It is unclear from the information provided whether revised depreciation was calculated when the subsequent expenditures (motors) were debited to the truck account (which is correct assuming that the motors enhanced the trucks which is likely). We will assume that this was treated correctly (capital expenditure with resulting calculation of revised depreciation) given no information to the contrary. The $32,000 and $2,500 costs regarding the tires and brakes were capitalized in error; they should have been expensed when incurred in 2013. Therefore, net income in 2013 is overstated by a potential $34,500 (32,000 + 2,500) — I say potential because it is unclear whether revised depreciation was calculated on the truck; this additional depreciation would affect the amount of any misstatement in 2013 and 2014. There is also the issue of when the bonus was recorded; these were recorded in the incorrect accounting periods (recorded when paid as opposed to the period which triggered the cost — violation of matching and realization principles). In addition, because the bonuses were based on overstated net income amounts, the bonuses would have been overstated for 2012 and 2013 and potentially in 2014.

It appears that the 2013 net income was overstated by almost 50%.

Conclusions/Consequences:

- **To do 'nothing' would mean that shareholders/owners are making decisions based on inaccurate information.**
- **If the manager did, in fact, engage in unethical actions, a longer term implication from the perspective of the manager is that he/she may lose their job and future employability prospects in addition to damaging the credibility of the company and its share values assuming it is publicly held.**
- **The board of directors need to be made aware of the errors made in recording capital expenditures so that they can deal appropriately with the manager responsible and negative repercussions with shareholders/owners.**

***The goal is highly dependent on perspective.**