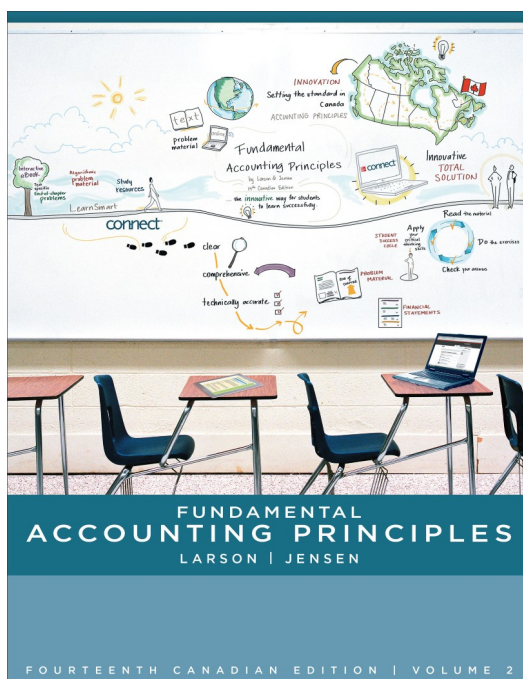


SOLUTIONS MANUAL
to accompany
Fundamental Accounting Principles
14th Canadian Edition
by Larson/Jensen



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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)

$$\text{\$18,000} + \text{\$180,000} + \text{\$3,000} + \text{\$600} = \underline{\underline{\text{\$201,600}}}$$

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
	<i>To record repairs.</i>		

(b)

Mar. 15	Refrigeration Equipment.....	40,000	
	Accounts Payable.....		40,000
	<i>To record capital expenditure.</i>		

(c)

Mar. 15	Repairs Expense.....	200	
	Accounts Payable.....		200
	<i>To record repairs.</i>		

(d)

Mar. 15	Office Building.....	175,000	
	Accounts Payable.....		175,000
	<i>To record capital expenditure.</i>		

Quick Study 10-3 (10 minutes)

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

1. $64\% \times 540,000 = 345,600$

2. $36\% \times 540,000 = 194,400$

2014

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

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.....	<u>800</u>	<u>15,600</u>	
Total current assets.....			\$ 24,600

Property, plant and equipment:

Land.....		\$48,000	
Vehicles.....	\$62,000		
Less: Accumulated depreciation.....	<u>13,800</u>	48,200	
Equipment.....	\$25,000		
Less: Accumulated depreciation.....	<u>3,800</u>	<u>21,200</u>	
Total property, plant and equipment.....			117,400

Intangible assets:

Patent.....	\$20,100		
Less: Accumulated amortization, patent	<u>3,100</u>		<u>17,000</u>
Total assets.....			<u>\$159,000</u>

Quick Study 10-5 (10 minutes)

$$(\$55,900 - \$1,900)/4 = \underline{\underline{\$13,500/\text{year}}}$$

Quick Study 10-6 (10 minutes)

$$\text{Rate per copy} = (\$45,000 - \$5,000)/4,000,000 \text{ copies} = \underline{\underline{\$0.01/\text{copy}}}$$

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

Quick Study 10-7 (10 minutes)

$$\text{Annual rate of depreciation} = 2/5 = .40 \text{ or } 40\% \text{ per year}$$

Year	Calculation	Annual Depreciation
2014	$40\% \times \$86,000 =$	\$34,400
2015	$40\% \times (\$86,000 - \$34,400) =$	20,640
2016	$40\% \times (\$86,000 - \$34,400 - \$20,640) =$	12,384
2017	$40\% \times (\$86,000 - \$34,400 - \$20,640 - \$12,384) =$	2,576*
2018		<u>0</u>
		<u><u>\$70,000</u></u>

*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:

$\$4,000/8 \text{ years} = \underline{\$500}$ depreciation

Drycleaning drum:

$\$70,000 - \$5,000 = \$65,000/400,000 \text{ garments} = \$0.1625/\text{garment};$

$\$0.1625/\text{garment} \times 62,000 \text{ garments} = \underline{\$10,075}$ depreciation

Stainless steel housing:

$\$85,000 - \$10,000 = \$75,000/20 \text{ years} = \underline{\$3,750}$ depreciation

Miscellaneous parts:

$\$26,000/2 \text{ years} = \underline{\$13,000}$ depreciation

Total depreciation on the dry cleaning equipment for 2014 = $\$500 + \$10,075 + \$3,750 + \$13,000 = \underline{\underline{\$27,325}}$

Quick Study 10-9 (10 minutes)

	<u>2014</u>	<u>2015</u>
a.	\$5,000	\$6,000
b.	\$3,000	\$6,000

Calculations:

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

b. $6,000/\text{year} \times 6/12 = 3,000$

Quick Study 10-10 (10 minutes)

	<u>2014</u>	<u>2015</u>
a.	\$10,000	\$10,000
b.	\$6,000	\$10,800

Calculations:

a. $2/10 = .2$ or 20%; $20\% \times 60,000 = 12,000 \times 10/12 = 10,000$ for 2014

$20\% \times (60,000 - 10,000) = 10,000$ for 2015

b. $20\% \times 60,000 = 12,000 \times 6/12 = 6,000$ for 2014

$20\% \times (60,000 - 6,000) = 10,800$ for 2015

Quick Study 10-11 (10 minutes)

	<u>2014</u>	<u>2015</u>
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

$\$0.50 \times 20,000 = \$10,000$ for 2014; $\$0.50 \times 28,000 = \$14,000$ 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. $(\$35,720 - \$4,200) / 8 = \$3,940/\text{year} \times 3 \text{ years} = \$11,820$

2. $10 - 3 = 7$

Quick Study 10-13 (10 minutes)

2014

Jan. 3	Barbecue – Rotisserie.....	1,000	
	Cash.....		1,000
	<i>To record the purchase of electronic rotisserie.</i>		

Dec. 31	Depreciation Expense, Barbecue.....	1,560	
	Accumulated Depreciation, Barbecue.....		1,560
	<i>To record revised depreciation on the barbecue caused by the addition of a rotisserie; $\\$7,000 - \\$200 = \\$6,800 \div 5 \text{ years} = \\$1,360$ PLUS $\\$1,000 \div 5 \text{ years} = \\200; Total depreciation = $\\$1,360 + \\$200 = \\$1,560$.</i>		

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
	<i>To record sale of equipment.</i>		

b.

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

c.

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

d.

Oct. 1	Accumulated Depreciation, Furniture.....	21,000	
	Loss on disposal.....	5,000	
	Furniture.....		26,000
	<i>To record disposal of equipment.</i>		

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	
	Cash¹.....		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
	<i>To record the purchase of intangibles.</i>		
Dec. 31	Amortization Expense, Mineral Rights	875,000	
	Accumulated Amortization, Mineral Rights		875,000
	<i>To record amortization of mineral rights;</i>		
	<i>\$35,000,000 ÷ 10 years = \$3,500,000/year;</i>		
	<i>\$3,500,000/year × 3/12 = \$875,000.</i>		
31	Amortization Expense, Water Rights	100,000	
	Accumulated Amortization, Water Rights		100,000
	<i>To record amortization of water rights;</i>		
	<i>\$4,000,000 ÷ 10 years = \$400,000/year;</i>		
	<i>\$400,000/year × 3/12 = \$100,000.</i>		

*** 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 =	<u>3,000</u>
Total depreciation expense to be recorded on the machine for 2014 =		<u><u>\$ 9,870</u></u>

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%).....	<u>300</u>
Total acquisition costs.....	<u>\$16,250</u>

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.....	<u>105,000.</u>
Total cost of land.....	<u>\$1,860,000.</u>

Cost of new building:

Construction costs.....	\$2,880,000
Less: Cost of land improvements*.....	<u>215,000</u>
Cost of new building.....	<u>\$2,665,000</u>

**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
	<i>To record costs of plant assets.</i>		

Exercise 10-3 (15 minutes)

Allocation of total cost:

	(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	\$249,480	$249,480 \div 594,000 = .42$ or 42%	\$ 244,346 ²
Land Imprv.	83,160	$83,160 \div 594,000 = .14$ or 14%	81,448 ³
Building	<u>261,360</u>	$261,360 \div 594,000 = .44$ or 44%	<u>255,981</u> ⁴
Totals	<u>\$594,000</u>		<u>\$ 581,775</u> ¹

1. $552,375 + 29,400 = 581,775$

2. $42\% \times 581,775 = 244,346$

3. $14\% \times 581,775 = 81,448$

4. $44\% \times 581,775 = 255,981$

Journal entry:

2014

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

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
	<i>To record lump-sum purchase.</i>		

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	$1,152,000 \div 3,840,000 = .30$ or 30%	\$ 1,296,000 ¹
Building	1,344,000	$1,344,000 \div 3,840,000 = .35$ or 35%	1,512,000 ²
Equipment	998,400	$998,400 \div 3,840,000 = .26$ or 26%	1,123,200 ³
Tools	345,600	$345,600 \div 3,840,000 = .09$ or 9%	388,800 ⁴
Totals	<u>\$ 3,840,000</u>		<u>\$ 4,320,000</u>

1. $30\% \times 4,320,000 = 1,296,000$

2. $35\% \times 4,320,000 = 1,512,000$

3. $26\% \times 4,320,000 = 1,123,200$

4. $9\% \times 4,320,000 = 388,800$

Exercise 10-5 (10 minutes)**2014**

Dec. 31	Depreciation Expense, Truck	11,100	
	Accumulated Depreciation, Truck		11,100
	<i>To record depreciation.</i>		

Calculation:

$$[(37,500 + 13,500 + 6,750 + 5,250) - 7,500] / 5 \text{ years} = 11,100$$

Exercise 10-6 (15 minutes)

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

1. $(169,200 - 24,000)/4 = 36,300/\text{year}$
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%
 $40\% \times 238,400 = \$95,360$
- c. Rate = $(238,400 - 46,400)/240,000 \text{ km} = \$0.80/\text{km}$
 $\$0.80/\text{km} \times 38,000 \text{ km} = \$30,400$

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)

Year	<u>Straight-Line¹</u>		<u>Double-Declining-Balance²</u>		<u>Units-of-Production³</u>	
	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:

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

- 2014 – Units-of-production; 2017 – Straight-line
- 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 <i>(a) ÷ Total Appraised Value</i>	(c) Cost Allocation <i>(b) x Total Actual Cost</i>
Land.....	\$ 700,000	$700,000 \div 2,100,000 = .33$ or 33.33%	\$ 840,000 ¹
Building.....	1,120,000	$1,120,000 \div 2,100,000 = .533$ or 53.33%	1,344,000 ²
Equipment.....	210,000	$210,000 \div 2,100,000 = .10$ or 10%	252,000 ³
Tools.....	70,000	$70,000 \div 2,100,000 = .033$ or 3.33%	84,000 ⁴
Totals.....	<u>\$ 2,100,000</u>		<u>\$ 2,520,000</u>

1. $33.33\% \times 2,520,000 = 840,000$
2. $53.33\% \times 2,520,000 = 1,344,000$
3. $10.00\% \times 2,520,000 = 252,000$
4. $3.33\% \times 2,520,000 = 84,000$

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

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

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

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.....	<u>68,000</u>	\$4,000	
Building.....	\$650,000		
Less: Accumulated depreciation.....	<u>226,667</u>	423,333	
Truck.....	\$ 80,000		
Less: Accumulated depreciation.....	<u>45,313</u>	<u>34,687</u>	
Total property, plant and equipment.....			<u>462,020</u>
Total assets.....			<u>\$800,020</u>

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.....	<u>\$ 97,920</u>	<u>\$ 97,920</u>	<u>\$ 97,920</u>	<u>\$ 97,920</u>	<u>\$ 97,920</u>	<u>\$489,600</u>

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).....	<u>\$(17,160)</u>	<u>\$ 58,104</u>	<u>\$106,656</u>	<u>\$171,000</u>	<u>\$171,000</u>	<u>\$489,600</u>

1. $(470,400 - 105,000)/5 = 73,080$

2. Rate = $2/5 = .40$ or 40%

Year 1: $470,400 \times 40\% = 188,160$

Year 2: $(470,400 - 188,160) \times 40\% = 112,896$

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

- $156,000 - 26,400 = 129,600/6 = 21,600 \times 4/12 = 7,200$
- $156,000 - 26,400 = 129,600/200,000 = \$0.648/\text{unit};$
 $.648 \times 31,000 = 20,088; .648 \times 67,000 = 43,416; .648 \times 52,000 = 33,696$

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:

- $110,000/5 = 22,000 \times 6/12 = 11,000$
- $2/5 = .4 \text{ or } 40\%; .4 \times 110,000 \times 6/12 = 22,000;$
 $.4 \times (110,000 - 22,000) = 35,200; .4 \times (110,000 - 22,000 - 35,200) = 21,120$

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)
<u>Year</u>	<u>Straight-Line</u>	<u>Double-Declining-Balance</u>
2014	$(125,000 - 12,500)/5 = 22,500 \times 9/12 = 16,875$	Rate = $2/5 = .40$ or 40% $125,000 \times 40\% \times 9/12 = 37,500$
2015	$(125,000 - 12,500)/5 = 22,500$	$(125,000 - 37,500) \times 40\% = 35,000$

Exercise 10-16 (10 minutes)

- $(43,500 - 5,000)/4 = 9,625/\text{year} \times 2 \text{ years} = 19,250$ accumulated depreciation
Book value = $43,500 - 19,250 = \underline{24,250}$
- $[(43,500 - 19,250) - 3,850]/3 = \underline{6,800}$

Exercise 10-17 (15 minutes)

2017

Dec. 31	Depreciation Expense, Machine.....	7,624	
	Accumulated Depreciation, Machine.....		7,624
	<i>To record depreciation.</i>		

Calculations:

$$\text{Revised depreciation} = \frac{(71,200 - 30,800^*) - 8,000}{7 - 2 \frac{9}{12} = 4.25 \text{ yrs}} = \underline{7,624/\text{year}}$$

$$*2014 \text{ depreciation} = 8,400 \quad (71,200 - 15,200)/5 = 11,200 \times 9/12$$

$$2015 \text{ depreciation} = 11,200$$

$$2016 \text{ depreciation} = \underline{11,200}$$

$$\text{Accumulated depreciation} \quad \underline{30,800}$$

Exercise 10-18 (20 minutes)

Part 1

2014			
Jan. 5	Warehouse – Door.....	25,500	
	Accounts Payable.....		25,500
	<i>To record addition of door on East wall of warehouse.</i>		

Part 2

2014			
Dec. 31	Depreciation Expense, Warehouse	14,700	
	Accumulated Depreciation, Warehouse....		14,700
	<i>To record revised depreciation on warehouse;</i>		
	<i>\$292,500 – \$90,000 = \$202,500; \$202,500 ÷ 15 yrs = \$13,500</i>		
	<i>PLUS \$25,500 - \$7,500 = \$18,000; \$18,000 ÷ 15 yrs = \$1,200;</i>		
	<i>Total depreciation on the warehouse = \$13,500 + \$1,200 = \$14,700.</i>		

Exercise 10-19 (30 minutes)**Part 1**

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

Part 2

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

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	1,800¹
Furniture	12,000	9,509	2,491	2,950	N/A	491²
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	3,838³
Warehouse	55,000	12,938	42,062	45,100	N/A	2,250⁴

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

Exercise 10-20 (20 minutes)

a.

2014

Mar. 1	Accumulated Depreciation, Van.....	21,850	
	Cash.....	20,150	
	Van.....		42,000
	<i>To record the sale of the van for \$20,150.</i>		

b.

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

c.

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

d.

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

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
	<i>To record partial year depreciation in year of disposal; $(296,800/7) \times 6/12 = 21,200$.</i>		

(a)			
July 1	Accumulated Depreciation, Machine.....	190,800*	
	Cash.....	112,000	
	Machine.....		296,800
	Gain on Disposal.....		6,000
	<i>To record sale of machine for 112,000.</i>		

(b)			
1	Accumulated Depreciation, Machine.....	190,800*	
	Cash.....	96,000	
	Loss on Disposal.....	10,000	
	Machine.....		296,800
	<i>To record receipt of \$96,000 from insurance settlement.</i>		

$$*(296,800/7) \times 4.5 \text{ years} = \underline{190,800}$$

Exercise 10-22 (10 minutes)

- a. $190,000 - 105,000 = \underline{85,000 \text{ book value}}$
- b. Book value of the assets given up = $(85,000 + 164,000) \dots = 249,000$
 Less: Fair value of assets given up $(56,000 + 164,000) \dots = \underline{220,000}$
 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
	<i>To record exchange of old tractor for a new one.</i>		

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

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
	<i>To record exchange of computers.</i>		

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 Disposal².....	1,000	
	Computer (old).....		150,000
	Cash.....		90,000
	<i>To record exchange of computers.</i>		

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
	<i>To record sale of machine;</i>		
	<i>32,500 – (84,000 – 45,250) = 6,250 loss.</i>		

(b)

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

(c)

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

(d)

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

Exercise 10-25 (10 minutes)

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

Exercise 10-26 (15 minutes)**Part 1**

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

Part 2

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

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.....	<u>1,920</u>	<u>25,280</u>
Total current assets.....		\$ 34,880

Property, plant and equipment:

Land.....	\$ 89,600	
Building.....	\$ 147,200	
Less: Accumulated depreciation.....	<u>81,600</u>	65,600
Equipment.....	\$ 184,000	
Less: Accumulated depreciation.....	<u>110,400</u>	<u>73,600</u>
Total property, plant and equipment.....		228,800

Intangible assets:

Mineral rights.....	\$ 57,600	
Less: Accumulated amortization.....	<u>30,400</u>	\$ 27,200
Trademark.....	\$ 33,600	
Less: Accumulated amortization.....	<u>22,400</u>	<u>11,200</u>
Total intangible assets.....		<u>38,400</u>

Total assets.....		<u><u>\$302,080</u></u>
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Liabilities**Current liabilities:**

Accounts payable.....	\$ 18,400	
Current portion of long-term note.....	<u>34,000</u>	
Total current liabilities.....		\$ 52,400

Long-term liabilities:

Note payable, less current portion.....	<u>38,000</u>	
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Total liabilities.....		\$ 90,400
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Equity

Ave Quia, capital.....		<u>211,680¹</u>
Total liabilities and equity.....		<u><u>\$302,080</u></u>

Calculations:

- 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.....	<u>900</u>	15,300
Prepaid rent.....	<u>1,080¹</u>	
Total current assets.....		\$ 25,380

Property, plant and equipment:

Furniture.....	\$21,600.....	
Less: Accumulated depreciation.....	<u>14,400²</u>	\$ 7,200
Machinery.....	\$48,600.....	
Less: Accumulated depreciation.....	<u>21,600³</u>	<u>27,000</u>
Total property, plant and equipment.....		34,200

Intangible assets:

Patent.....	\$21,600	
Less: Accumulated amortization.....	<u>720⁴</u>	<u>20,880</u>

Total assets.....		<u>\$80,460</u>
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Liabilities**Current liabilities:**

Accounts payable.....	\$4,860.....	
Unearned revenues.....	5,760.....	
Current portion of long-term note.....	<u>5,400</u>	
Total current liabilities.....		\$ 16,020

Long-term liabilities:

Note payable, less current portion.....	<u>8,100</u>	
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Total liabilities.....		\$24,120
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Equity

Josh Victhom, capital.....		<u>56,340⁵</u>
Total liabilities and equity.....		<u>\$80,460</u>

Calculations:

- $12,960 \times 11/12 = 11,880$ rent used; $12,960 - 11,880 = 1,080$ remaining in Prepaid Rent
- $21,600 \div 5 = 4,320$; $4,320 + 10,080 = 14,400$ accum. dep.
- $48,600 - 20,088 = 28,512$; $28,512 \times 2/10 = 5,702$; maximum depreciation is $48,600 - 27,000 = 21,600$ therefore 2014 depreciation expense is 1,512 and accum. dep. is $20,088 + 1,512 = 21,600$.
- $21,600 \div 15 = 1,440$ /year; $1,440 \times 6/12 = 720$.
- $22,572$ 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
		<u>\$ 45,600</u>			<u>\$ 5,400</u>	<u>\$4,200</u>	<u>\$4,800</u>

Calculations:

1. $28,000 \div 10 \text{ yrs} = 2,800/\text{yr}$
2. $8,000 \div 10 \text{ yrs} = 800/\text{yr}$
3. $9,600 \div 8 \text{ yrs} = 1,200/\text{yr} \times 6/12 = 600$ 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

	<u>Land</u>	<u>Building Two</u>	<u>Building Three</u>	<u>Land Impmnts. One</u>	<u>Land Impmnts. Two</u>
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.....	<u>\$3,810,880</u>	<u>\$985,600</u>	<u>\$3,230,400</u>	<u>\$627,200</u>	<u>\$252,800</u>

*ALLOCATION OF PURCHASE PRICE:

	<u>Appraised Value</u>	<u>Percent of Total</u>	<u>Apportioned Cost</u>
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.....	<u>\$4,664,000</u>	<u>100%</u>	<u>\$4,480,000</u>

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
	<i>To record costs of plant assets.</i>		

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	<u>2,400</u>		<u>2,320</u>	
Total current assets		\$ 54,400		\$ 79,120
Property, plant and equipment:				
Equipment	\$184,000		\$100,000	
Less: Accumulated depreciation	<u>72,800</u>	111,200	<u>64,800</u>	35,200
Tools	\$143,920		\$100,800	
Less: Accumulated depreciation	<u>44,800</u>	99,120	<u>42,400</u>	58,400
Vehicles	\$252,800		\$252,800	
Less: Accumulated depreciation	<u>108,800</u>	<u>144,000</u>	<u>97,600</u>	<u>155,200</u>
Total property, plant and equipment		354,320		248,800
Intangible assets:				
Franchise	\$ 41,600		\$ 41,600	
Less: Accumulated amortization	<u>19,200</u>	22,400	<u>11,200</u>	30,400
Patent	\$ 16,000		\$ 16,000	
Less: Accumulated amortization	<u>4,000</u>	<u>12,000</u>	<u>2,400</u>	<u>13,600</u>
Total intangible assets		<u>34,400</u>		<u>44,000</u>
Total assets		<u>\$443,120</u>		<u>\$371,920</u>
Liabilities				
Current liabilities:				
Accounts payable	\$ 56,800		\$ 9,600	
Salaries payable	<u>32,800</u>		<u>26,400</u>	
Total current liabilities		\$ 89,600		\$ 36,000
Long-term liabilities:				
Notes payable, due in 2023		<u>240,000</u>		<u>129,600</u>
Total liabilities		\$329,600		\$165,600
Equity				
Lee Derlak, capital		<u>113,520</u> *		<u>206,320</u>
Total liabilities and equity		<u>\$443,120</u>		<u>\$371,920</u>
*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	$(828,000 - 192,000)/10 = 63,600/\text{year} \times 10/12 = 53,000$	Rate = $2/10 = .20$ or 20% $828,000 \times 20\% \times 10/12 = 138,000$	Rate = $(828,000 - 192,000)/13,250 = 48/\text{hour}$ $48 \times 720 = 34,560$
2015	63,600	$(828,000 - 138,000) \times 20\% = 138,000$	$48 \times 1,780 = 85,440$
2016	63,600	$(828,000 - 138,000 - 138,000) \times 20\% = 110,400$	$48 \times 1,535 = 73,680$

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	$(828,000 - 192,000)/10 = 63,600/\text{year} \times 6/12 = 31,800$	Rate = $2/10 = .20$ or 20% $828,000 \times 20\% \times 6/12 = 82,800$	Same as Problem 10-3A; Units-of-production is usage based and not affected by time 34,560
2015	63,600	$(828,000 - 82,800) \times 20\% = 149,040$	85,440
2016	63,600	$(828,000 - 82,800 - 149,040) \times 20\% = 119,232$	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%

$$2014: 0.25 \times 375,000 \times 6/12 = 46,875$$

$$2015: 0.25 \times (375,000 - 46,875) = 82,031$$

$$2016: 0.25 \times (375,000 - 46,875 - 82,031) = 61,524$$

2. $(375,000 - 62,500)/8 = 39,063 \times 6/12 = 19,531$ **Problem 10-6A (15 minutes)****1.****2015**

Apr. 30	Depreciation Expense, Building.....	65,000	
	Accumulated Depreciation, Building.....		65,000
	<i>To record annual depreciation;</i>		
	<i>975,000/15 = 65,000.</i>		
30	Depreciation Expense, Equipment.....	86,400	
	Accumulated Depreciation, Equipment.....		86,400
	<i>To record annual depreciation;</i>		
	<i>Rate = $2/10 = .20$ or 20%;</i>		
	<i>432,000 $\times$ 20% = 86,400.</i>		

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.....	<u>780,000</u>	195,000
Equipment.....	750,000	
Less: Accumulated depreciation.....	<u>404,400</u>	<u>345,600</u>
Total property, plant and equipment.....		<u><u>\$1,190,600</u></u>

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.....	<u>176,800</u>	<u>13</u>	<u>163,800</u>
Total.....	<u><u>\$1,360,000</u></u>	<u><u>100%</u></u>	<u><u>\$1,260,000</u></u>

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:

$$(\$604,800 - \$41,040)/15 \times 10/12 = \underline{\underline{\$31,320}}$$

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

$$\text{Rate} = 2/5 = .40 \text{ or } 40\%$$

$$\$63,000 \times 40\% \times 10/12 = \underline{\underline{\$21,000}}$$

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)

<u>Year</u>	<u>Straight-Line^a</u>	<u>Units-of-Production^b</u>	<u>Double-Declining-Balance^c</u>
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	<u>76,000</u>	<u>89,664</u>	<u>4,500</u>
Totals	<u>\$456,000</u>	<u>\$456,000</u>	<u>\$456,000</u>

^aStraight-line:

$$\text{Cost per year} = (504,000 - 48,000)/4 \text{ years} = \$114,000 \text{ per year} \times 4/12 = 38,000$$

^bUnits-of-production:

$$\text{Cost per unit} = (504,000 - 48,000)/475,000 \text{ units} = \$0.96 \text{ per unit}$$

<u>Year</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Depreciation</u>
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	<u>89,664*</u>
Total			<u>\$456,000</u>

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

^cDouble-declining-balance:

$$\text{Rate} = 2/4 = .50 \text{ or } 50\%$$

$$2014: 50\% \times 504,000 \times 4/12 = 84,000$$

$$2015: 50\% \times (504,000 - 84,000) = 210,000$$

$$2016: 50\% \times (504,000 - 84,000 - 210,000) = 105,000$$

$$2017: 50\% \times (504,000 - 84,000 - 210,000 - 105,000) = 52,500$$

$$2018: 456,000 - 451,500^* = 4,500$$

**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

- $(52,000 - 14,000)/10 = 3,800/\text{year} \times 3 \frac{9}{12} = 14,250$
- $(52,000 - 14,000)/10 = 3,800/\text{year}$
- $14,250 + 3,800 = 18,050$
- Rate = $2/6 = .3333$ or 33.33%
 2011: $33.33\% \times 275,000 \times 7/12 = 53,472$
 2012: $33.33\% \times (275,000 - 53,472) = 73,843$
 2013: $33.33\% \times (275,000 - 53,472 - 73,843) = 49,228$
 2014: $33.33\% \times (275,000 - 53,472 - 73,843 - 49,228) = 32,819$
 Accumulated depreciation at Dec. 31, 2014 = \$209,362
- 2015: $(275,000 - 46,000) - 209,362 = 19,638$
- $209,362 + 19,638 = 229,000$
- Rate = $(113,000 - 26,000)/250,000 = \$0.348/\text{km}$; $14,000 \times 0.348 = 4,872$
- $68,000 \times 0.348 = 23,664$
- $4,872 + 23,664 = 28,536$

Problem 10-10A (20 minutes)**2014**

Mar. 26	Delivery Truck.....	102,900	
	Cash.....		102,900
	<i>To record purchase of new truck; \$97,075 plus \$5,825 freight costs.</i>		
Dec. 31	Depreciation Expense, Delivery Truck¹.....	13,185	
	Accumulated Depreciation, Delivery Truck.....		13,185
	<i>To record depreciation from Mar. 26 to Dec. 31, 2014.</i>		

2015

Dec. 31	Depreciation Expense, Delivery Truck².....	22,220	
	Accumulated Depreciation, Delivery Truck.....		22,220
	<i>To record depreciation.</i>		

$$1. (102,900 - 15,000)/5 \times 9/12 = 13,185$$

$$2. \frac{102,900 - 13,185 - 17,500}{4 - 9/12} = 22,220$$

Problem 10-11A (30 minutes)**2015**

Dec. 31	Depreciation Expense, Machinery¹.....	95,200	
	Accumulated Depreciation, Machinery.....		95,200
	<i>To record annual depreciation.</i>		
31	Depreciation Expense, Office Furniture².....	11,733	
	Accumulated Depreciation, Office Furniture.....		11,733
	<i>To record annual depreciation.</i>		

Calculations:

	Cost	Accumulated Depreciation	Residual	
1.	<u>556,800 –</u>	<u>246,400 –</u>	<u>120,000</u>	= 95,200
		2		

	Cost	Accumulated Depreciation	Residual	
2.	<u>89,600 –</u>	<u>49,600 –</u>	<u>(11,200 – 6,400)</u>	= 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
	<i>To record installation of replacement blade.</i>		

Calculations:

1. $7,720 - 1,000 = 6,720$; $6,720 \div 5 \text{ yrs} = 1,344$ deprec. for 2012;
 $1,344 + 1,344$ deprec. for 2013 = 2,688 accum. deprec. at Dec. 31, 2013.

Part 2

Metal	$44,000 - 8,000 = 36,000$; $36,000 \div 15 \text{ yrs} = 2,400$ for 2012 <i>PLUS</i>	
Housing	$2,400$ 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;	
	$30,600 \div 18 \text{ years}^* =$	\$1,700

**20 years – 2 yrs already depreciated = 18 yr remaining life*

Motor	2012: $26,000 \times 2/10 = 5,200$	
	2013: $26,000 - 5,200 = 20,800 \times 2/10 = 4,160$	
	2014: $20,800 - 4,160 = 16,640 \times 2/10 =$	3,328
Blade	$10,400 - 1,000 = 9,400$; $9,400 \div 5 \text{ yrs} =$	<u>1,880</u>
Total depreciation expense to be recorded on Machine #5027 for 2014 =		<u>\$6,908</u>

Problem 10-13A (40 minutes)

Part 1

2014

Oct. 31	Impairment Loss	24,200	
	Equipment		24,200
	<i>To record impairment loss on equipment.</i>		
31	Impairment Loss	14,300	
	Furniture		14,300
	<i>To record impairment loss on furniture.</i>		

***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.....	<u>\$ 19,800</u>	
Less: Allowance for doubtful accounts.....	<u>880</u>	18,920
Merchandise inventory.....	<u>35,200</u>	
Total current assets.....		\$ 65,120

Property, plant and equipment:

Land.....	\$105,600	
Building.....	<u>\$136,400</u>	
Less: Accumulated depreciation.....	<u>79,200</u>	57,200
Equipment.....	<u>\$ 66,000¹</u>	
Less: Accumulated depreciation.....	<u>37,400</u>	28,600
Furniture.....	<u>\$ 36,300²</u>	
Less: Accumulated depreciation.....	<u>20,900</u>	15,400
Total property, plant and equipment.....		<u>206,800</u>
Total assets.....		<u>\$271,920</u>

Liabilities**Current liabilities:**

Accounts payable.....	\$ 11,220	
Unearned revenues.....	<u>7,920</u>	
Current portion of long-term note.....	<u>26,400</u>	
Total current liabilities.....		\$ 45,540

Long-term liabilities:

Note payable, less current portion.....	<u>59,400</u>	
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Total liabilities.....		\$104,940
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Equity

Tarifa Sharma, capital.....	<u>166,980³</u>	
Total liabilities and equity.....		<u>\$271,920</u>

Calculations:

- 90,200 cost – 24,200 impairment loss = 66,000
- 50,600 cost – 14,300 impairment loss = 36,300
- 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, Building¹.....		4,950
	<i>To record building depreciation for 2015.</i>		
27	Cash.....	592,000	
	Accumulated Depreciation, Building².....	398,550	
	Gain on Disposal.....		67,350
	Land.....		396,800
	Building.....		526,400
	<i>To record sale of land and building.</i>		

2.

Nov. 2	Depreciation Expense, Equipment.....	16,133	
	Accumulated Depreciation, Equipment³.....		16,133
	<i>To record equipment depreciation for 2015.</i>		
2	Cash.....	56,800	
	Accumulated Depreciation, Equipment⁴.....	90,533	
	Loss on Disposal.....	23,867	
	Equipment.....		171,200
	<i>To record sale of equipment.</i>		

1. Depreciation from Jan. 1, 2015 to Sept. 27, 2015

$$[(526,400 - 393,600) - 80,000]/8 = 6,600/\text{year} \times 9/12 = 4,950$$
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%

$$171,200 - 74,400 = 96,800 \times 20\% = 19,360 \times 10/12 = 16,133$$
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
	<i>To record purchase of machine.</i>		

3	Machine.....	4,788	
	Cash.....		4,788
	<i>To record capital repairs on machine.</i>		

3	Machine.....	1,512	
	Cash.....		1,512
	<i>To record installation of machine.</i>		

2.

2014

Dec. 31	Depreciation Expense, Machine.....	17,080	
	Accumulated Depreciation, Machine.....		17,080
	<i>To record depreciation;</i> <i>(123,200 – 20,720)/6 = 17,080.</i>		

2019

Sept. 30	Depreciation Expense, Machine.....	12,810	
	Accumulated Depreciation, Machine.....		12,810
	<i>To record partial year's depreciation;</i> <i>17,080 × 9/12 = 12,810.</i>		

3(a).

30	Accumulated Depreciation, Machine ¹	98,210	
	Cash.....	21,000	
	Loss on Disposal ²	3,990	
	Machine.....		123,200
	<i>Sold machine for \$21,000.</i>		

3(b).

30	Accumulated Depreciation, Machine.....	98,210	
	Cash.....	27,300	
	Machine.....		123,200
	Gain on Disposal ³		2,310
	<i>Sold machine for \$27,300.</i>		

3(c).

30	Accumulated Depreciation, Machine.....	98,210	
	Cash.....	25,760	
	Machine.....		123,200
	Gain on Disposal ⁴		770
	<i>Received insurance settlement.</i>		

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 |
| | = <u>98,210</u> | |
| 2. Gain (Loss) | = Cash Proceeds – Book Value | |
| | = 21,000 – (123,200 – 98,210) = <u>(3,990)</u> | |
| 3. Gain (Loss) | = Cash Proceeds – Book Value | |
| | = 27,300 – (123,200 – 98,210) = <u>2,310</u> | |
| 4. Gain (Loss) | = Cash Proceeds – Book Value | |
| | = 25,760 – (123,200 – 98,210) = <u>770</u> | |

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
	<i>To record exchange.</i>		

Dec. 31	Depreciation Expense, Furniture.....	3,236	
	Accumulated Depreciation, Furniture.....		3,236
	<i>To record depreciation;</i>		
	<i>(45,100 – 6,268)/6 × 6/12 = 3,236.</i>		

- * 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
	<i>To record depreciation.</i>		

2017

Dec. 31	Depreciation Expense, Machine 17-95 ³	22,646	
	Accumulated Depreciation, Machine 17-95		22,646
	<i>To record depreciation.</i>		

2018

Dec. 31	Depreciation Expense, Machine BT-311 ⁵	77,810	
	Accumulated Depreciation, Machine BT-311.....		77,810
	<i>To record depreciation.</i>		

b. Purchase/exchange/disposal of each machine.**2014**

Apr. 1	Machine 15-50.....	52,900	
	Cash.....		52,900
	<i>To record purchase of Machine 15-50.</i>		

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
	<i>To record exchange of Machine 15-50.</i>		

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
	<i>To record exchange of Machine 17-95.</i>		

2021

Aug. 21	Cash.....	81,200	
	Accumulated Depreciation, Machine BT-311 ⁶	348,890	
	Loss on Disposal.....	106,910	
	Machine BT-311.....		537,000
	<i>To record sale of Machine BT-311.</i>		

Problem 10-17A (continued)

Calculations:

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

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%
 $50\% \times 60,390 \times 9/12 = \underline{22,646}$ (deprec. for 2017)

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

5. $(537,000 - 35,000)/200,000 = 2.51/\text{unit}$
2018: 31,000 units $\times$ 2.51/unit = 77,810

6. Depreciation for Jan. 1/2019 to August 21/2021

= 108,000 units × 2.51/unit	=	271,080	
		+ <u>77,810</u>	(2018)
		<u>348,890</u>	(accum. deprec.)

Problem 10-18A (10 minutes)

(a)

2014

Oct. 1	Copyright.....	288,000	
	Cash.....		288,000
	<i>To record purchase of copyright.</i>		

(b)

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

Problem 10-19A (30 minutes)**Part 1****2014**

Dec. 31	Amortization Expense, Mineral Rights	13,000	
	Accumulated Amortization, Mineral Rights		13,000
	<i>To record amortization on the mineral rights;</i>		
	$\$62,400 \div 4 \text{ years} = \$15,600/\text{year} \times 10/12 = \$13,000.$		
31	Depreciation Expense, Equipment	51,000	
	Accumulated Depreciation, Equipment		51,000
	<i>To record depreciation on the equipment;</i>		
	$\$244,800 \div 4 \text{ years} = \$61,200/\text{year} \times 10/12 = \$51,000.$		
31	Depreciation Expense, Truck	19,875	
	Accumulated Depreciation, Truck.....		19,875
	<i>To record depreciation on the truck;</i>		
	$\$95,400 \div 4 \text{ years} = \$23,850/\text{year} \times 10/12 = \$19,875.$		

Part 2**2017**

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

Problem 10-20A (30 minutes)*Part 1**

a.

2014

Jun. 27	Depreciation Expense, Boat – Motor.....	2,660	
	Accumulated Depreciation, Boat – Motor.....		2,660
	<i>To update depreciation in 2014 regarding motor being replaced.</i>		

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
	<i>To record replacement of motor.</i>		

b.

Dec. 31	Depreciation Expense, Boat.....	3,113 ²	
	Accumulated Depreciation, Boat.....		3,113
	<i>To record revised depreciation for 2014 on the boat (boat body plus motor).</i>		

Calculations:

1. $53,200 \div 10 \text{ years} = 5,320/\text{year}$; $5,320 \times 9/12 = 3,990$ depreciation for 2006; $5,320 \times 7 \text{ years}$ for 2007 thru 2013 = 37,240; $5,320/\text{year} \times 6/12 = 2,660$ 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:
 $23,800 - 7,000 = 16,800$; $16,800 \div 15 \text{ years} = 1,120/\text{year}$; $1,120 \times 9/12 = 840$ depreciation for 2006; $1,120 \times 7 \text{ years}$ (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;
 $8,120 \div 12.25^1 \text{ years} =$ **\$ 663***

¹ $20 - 7 \text{ } 9/12 = 12 \text{ } 3/12$ or 12.25 years remaining useful life

Motor: $63,000 - 4,200 = 58,800$; $58,800 \div 12 \text{ years} = 4,900/\text{yr} \times 6/12 =$ 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**

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

*Allocation of purchase price:

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

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
	<i>To record costs of plant assets.</i>		

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

$$*226,080 - 72,000 + 540,000 - 558,000 = 136,080$$

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	$(145,000 - 25,000)/5 =$ $24,000/\text{year} \times 2/12 =$ 4,000	Rate = $2/5 = .40$ or 40% $145,000 \times 40\% \times 2/12 =$ 9,667	Rate = $(145,000 - 25,000)/100,000 = 1.20/\text{km}$ $1.20 \times 5,800 =$ 6,960
2015	24,000	$(145,000 - 9,667) \times 40\% =$ 54,133	$1.20 \times 19,400 =$ 23,280
2016	24,000	$(145,000 - 9,667 - 54,133) \times 40\% =$ 32,480	$1.20 \times 22,850 =$ 27,420
2017	24,000	$(145,000 - 9,667 - 54,133 - 32,480) \times$ 40% = 19,488	$1.20 \times 25,700 =$ 30,840
2018	24,000	4,232*	$1.20 \times 19,980 =$ 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	$(145,000 - 25,000)/5 =$ $24,000/\text{year} \times 6/12 =$ 12,000	Rate = $2/5 = .40$ or 40% $145,000 \times 40\% \times 6/12 =$ 29,000	Same as Problem 10-3B; Units-of-production is usage based and not affected by time 6,960
2015	24,000	$(145,000 - 29,000) \times 40\% =$ 46,400	$1.20 \times 19,400 =$ 23,280
2016	24,000	$(145,000 - 29,000 - 46,400) \times 40\% =$ 27,840	$1.20 \times 22,850 =$ 27,420
2017	24,000	$(145,000 - 29,000 - 46,400 - 27,840) \times$ 40% = 16,704	$1.20 \times 25,700 =$ 30,840
2018	24,000	56*	$1.20 \times 19,980 =$ 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%

$$2014: 20\% \times 588,000 \times 6/12 = 58,800$$

$$2015: 20\% \times (588,000 - 58,800) = 105,840$$

$$2016: 20\% \times (588,000 - 58,800 - 105,840) = 84,672$$

2. $(588,000 - 56,000)/10 = 53,200 \times 6/12 = 26,600$

Problem 10-6B (15 minutes)

Part 1.

2015

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

Part 2.

WESTFAIR FOODS
Partial Balance Sheet
December 31, 2015

Property, plant and equipment:

Machinery.....	\$ 500,000	
Less: Accumulated depreciation.....	<u>385,000</u>	\$115,000
Equipment.....	1,280,000	
Less: Accumulated depreciation.....	<u>1,153,334</u>	<u>126,666</u>
Total property, plant and equipment.....		<u>\$241,666</u>

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.....	<u>24,120</u>	<u>2</u>	<u>20,880</u>
Total.....	<u>\$1,206,000</u>	<u>100%</u>	<u>\$1,044,000</u>

2014

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

Part 2 2014 straight-line depreciation on building:

$$(\$574,200 - 45,000)/15 \times 3/12 = \underline{\underline{\$8,820}}$$

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

$$\text{Rate} = 2/8 = .25 \text{ or } 25\%$$

$$\$104,400 \times 25\% \times 3/12 = \underline{\underline{\$6,525}}$$

Problem 10-8B (45 minutes)

<u>Year</u>	<u>Straight-Line^a</u>	<u>Units-of-Production^b</u>	<u>Double-Declining-Balance^c</u>
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	<u>15,652</u>	<u>21,140</u>	<u>0</u>
Totals	<u>\$234,780</u>	<u>\$234,780</u>	<u>\$234,780</u>

^aStraight- line:

$$\text{Cost per year} = (273,000 - 38,220)/5 \text{ years} = \$46,956 \text{ per year} \times 8/12$$

$$= \$31,304 \text{ for 2014}$$

$$= \$46,956/\text{year} \times 4/12 = \$15,652 \text{ for 2019}$$

^bUnits-of-production:

$$\text{Cost per unit} = (273,000 - 38,220)/168,000 \text{ units} = \$1.40 \text{ per unit}$$

(ROUNDED)

<i>Year</i>	<i>Units</i>	<i>Unit Cost</i>	<i>Depreciation</i>
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	<u>21,140*</u>
Total			<u>\$234,780</u>

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

^cDouble-declining-balance:

$$\text{Rate} = 2/5 = .40 \text{ or } 40\%$$

$$2014: 40\% \times 273,000 \times 8/12 = 72,800$$

$$2015: 40\% \times (273,000 - 72,800) = 80,080$$

$$2016: 40\% \times (273,000 - 72,800 - 80,080) = 48,048$$

$$2017: 40\% \times (273,000 - 72,800 - 80,080 - 48,048) = 28,829$$

$$2018: 234,780 - 229,757^* = 5,023$$

*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. $(62,400 - 16,800)/20 = 2,280/\text{year} \times 2\ 6/12 = \underline{5,700}$

2. $(62,400 - 16,800)/20 = \underline{2,280/\text{year}}$

3. $5,700 + 2,280 = \underline{7,980}$

4. Rate = $(540,000 - 180,000)/100,000 = 3.60/\text{unit};$

2012: $940 \times 3.60 = 3,384$

2013: $10,150 \times 3.60 = 36,540$

2014: $9,280 \times 3.60 = \underline{33,408}$

73,332

5. $10,590 \times 3.60 = \underline{38,124}$

6. $73,332 + 38,124 = \underline{111,456}$

7. Rate = $2/5 = .40$ or 40%

2012: $40\% \times 64,000 \times 6/12 = 12,800$

2013: $40\% \times (64,000 - 12,800) = 20,480$

2014: $40\% \times (64,000 - 12,800 - 20,480) = \underline{12,288}$

Accumulated depreciation at Apr. 30, 2014 = \$45,568

8. 2015: $(64,000 - 15,000) - 45,568 = \underline{3,432}$

9. $45,568 + 3,432 = \underline{49,000}$

Problem 10-10B (20 minutes)**2014**

June 26	Truck.....	71,820	
	Cash.....		71,820
	<i>To record purchase of new truck; \$68,400 + \$3,420 freight costs.</i>		
27	Truck.....	3,780	
	Cash.....		3,780
	<i>To record installation of special racks.</i>		
Dec. 31	Depreciation Expense, Truck ¹	7,200	
	Accumulated Depreciation, Truck.....		7,200
	<i>To record depreciation for half-year.</i>		

2015

Jan. 5	No entry.		
Mar. 15	Repair and Maintenance Expense.....	660	
	Cash.....		660
	<i>To record repairs.</i>		
Dec. 31	Depreciation Expense, Truck ²	10,600	
	Accumulated Depreciation, Truck.....		10,600
	<i>To record revised depreciation</i>		

1. $[(71,820 + 3,780) - 18,000]/4 \times 6/12 = \underline{7,200}$

2. $[(71,820 + 3,780) - 7,200 - 10,100]/(6 - .5 = 5.5) = \underline{10,600}$

Problem 10-11B (40 minutes)

2015

Dec. 31	Depreciation Expense, Building¹.....	1,620	
	Accumulated Depreciation, Building.....		1,620
	<i>To record annual depreciation.</i>		
31	Depreciation Expense, Equipment².....	7,320	
	Accumulated Depreciation, Equipment.....		7,320
	<i>To record annual depreciation.</i>		

$$\begin{array}{rclcl}
 & \text{Cost} & \text{Accumulated} & \text{Residual} & \\
 1. & 274,800 & - & 134,400 & - 108,000 = \underline{\underline{1,620}} \\
 & & & 20 &
 \end{array}$$

$$\begin{array}{rclcl}
 & \text{Cost} & \text{Accumulated} & \text{Residual} & \\
 2. & 117,600 & - & 38,400 & - 6,000 = \underline{\underline{7,320}} \\
 & & & 10 &
 \end{array}$$

Problem 10-12B (40 minutes)**2014**

Jan. 4	Warehouse – Furnace (new).....	39,000	
	Accumulated Depreciation, Warehouse – Furnace.....	18,153¹	
	Loss on Disposal	8,847	
	Warehouse – Furnace (old).....		27,000
	Accounts Payable.....		39,000
	<i>To record installation of new warehouse furnace.</i>		

Calculations:

- 2009 Deprec.: $27,000 \times 2/10 = 5,400$;

2010 Deprec.: $(27,000 - 5,400) \times 2/10 = 4,320$;

2011 Deprec.: $(27,000 - 9,720) \times 2/10 = 3,456$;

2012 Deprec.: $(27,000 - 13,176) \times 2/10 = 2,765$;

2013 Deprec.: $(27,000 - 15,941) \times 2/10 = 2,212$;

Accum. Deprec. Dec. 31, 2013 = $5,400 + 4,320 + 3,456 + 2,765 + 2,212 = 18,153$.

Part 2

Windows	$51,750 \div 15 =$	\$ 3,450
Doors	$105,000 \div 20 = 5,250/\text{yr}$; $5,250/\text{yr} \times 5 \text{ yrs} = 26,250 \text{ Accum. Dep.}$; $105,000 - 26,250 = 78,750 \text{ book value}$; $78,750 - 23,100 = 55,650 \text{ revised depreciable value}$; $55,650 \div (12 \text{ yrs} - 5 \text{ yrs} = 7 \text{ yrs}) =$	7,950
Roofing	$43,500 \div 10 =$	4,350
Siding	$54,000 \div 25 =$	2,160
Framing/Walls	$222,000 - 60,000 = 162,000$; $162,000 \div 30 =$	5,400
Furnace	$39,000 \times 2/16 =$	4,875
Misc.	Maximum allowable depreciation reached¹	-0-
Total depreciation expense to be recorded on the warehouse for 2014 =		<u>\$28,185</u>

- 2009: $61,500 \times 2/5 = 24,600$;

2010: $(61,500 - 24,600) \times 2/5 = 14,760$;

2011: $(61,500 - 39,360) \times 2/5 = 8,856$;

2012: $(61,500 - 48,216) \times 2/5 = 5,314$;

2013: $(61,500 - 53,530) \times 2/5 = 3,188$ 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
	<i>To record impairment loss on computer equipment.</i>		
31	Impairment Loss.....	23,750	
	Machinery.....		23,750
	<i>To record impairment loss on machinery.</i>		

*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.....	<u>6,000</u>	51,500
Office supplies.....	<u>4,875</u>	
Total current assets.....		\$ 91,375

Property, plant and equipment:

Land.....	\$145,000	
Warehouse.....	\$ 460,000.....	
Less: Accumulated depreciation.....	<u>286,500</u>	173,500
Machinery.....	\$217,500 ¹	
Less: Accumulated depreciation.....	<u>152,500</u>	65,000
Computer equipment.....	\$ 46,500 ²	
Less: Accumulated depreciation.....	<u>40,250</u>	6,250
Total property, plant and equipment.....		<u>389,750</u>
Total assets.....		<u>\$481,125</u>

Liabilities**Current liabilities:**

Accounts payable.....	\$ 14,750.....	
Salaries payable.....	33,750.....	
Current portion of long-term mortgage.....	<u>59,550</u>	
Total current liabilities.....		\$108,050

Long-term liabilities:

Mortgage payable, less current portion.....	<u>34,200</u>	
Total liabilities.....		\$142,250

Equity

Joy La Mancha, capital.....	<u>338,875³</u>	
Total liabilities and equity.....		<u>\$481,125</u>

Calculations:

- 241,250 cost – 23,750 impairment loss = 217,500
- 72,500 cost – 26,000 impairment loss = 46,500
- 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, Van¹.....		1,575
		<i>To record depreciation on van for 2014.</i>		
	2	Cash.....	17,920	
		Accumulated Depreciation, Van¹.....	42,175	
		Loss on Disposal.....	4,305	
		Van.....		64,400
		<i>To record sale of van.</i>		

Part 2

Aug.	27	Depreciation Expense, Machinery.....	12,642	
		Accumulated Depreciation, Machinery².....		12,642
		<i>To record depreciation on machinery for 2014.</i>		
	27	Cash.....	95,718	
		Accumulated Depreciation, Machinery².....	33,082	
		Machinery.....		128,800
		<i>To record sale of machinery.</i>		

Part 3

June 29		Depreciation Expense, Equipment.....	3,500	
		Accumulated Depreciation, Equipment³.....		3,500
		<i>To record depreciation on equipment for 2014.</i>		
	29	Cash.....	27,720	
		Accumulated Depreciation, Equipment³.....	48,300	
		Gain on Disposal.....		420
		Equipment.....		75,600
		<i>To record sale of equipment.</i>		

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

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

$$\begin{array}{r} + 40,600 \\ \hline 42,175 \end{array}$$

(calculations continued on next page)

Problem 10-14B (concluded)**2. Depreciation from Feb. 1/14 to Aug. 27/14:**

$$128,800 - 20,440 = 108,360 \text{ Book Value}$$

$$\text{Rate} = 2/10 = .20 \text{ or } 20\%$$

$$108,360 \times 20\% \times 7/12 =$$

$$\begin{array}{r} 12,642 \\ + 20,440 \\ \hline 33,082 \end{array}$$

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

$$\frac{75,600 - 44,800 - 5,600}{3} \times 5/12 =$$

$$\begin{array}{r} 3,500 \\ + 44,800 \\ \hline 48,300 \end{array}$$

Problem 10-15B (60 minutes)**Part 1****2014**

Jan.	1	Machine.....	156,000	
		Cash.....		156,000
		<i>To record purchase of machine.</i>		
	2	Machine.....	4,068	
		Cash.....		4,068
		<i>To record capital repairs on machine.</i>		
	2	Machine.....	5,760	
		Cash.....		5,760
		<i>To record installation of machine.</i>		

Part 2

Dec.	31	Depreciation Expense, Machine.....	20,604	
		Accumulated Depreciation, Machine.....		20,604
		<i>To record depreciation;</i>		
		<i>(165,828 - 21,600)/7 = 20,604</i>		

2019

Apr.	1	Depreciation Expense, Machine.....	5,151	
		Accumulated Depreciation, Machine.....		5,151
		<i>To record partial year's depreciation;</i>		
		<i>20,604 × 3/12 = 5,151.</i>		

Problem 10-15B (concluded)**Part 3(a)**

Apr. 30	Accumulated Depreciation, Machine¹.....	108,171	
	Cash.....	36,000	
	Loss on Disposal².....	21,657	
	Machine.....		165,828
	<i>Sold machine for \$36,000.</i>		

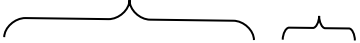
Part 3(b)

30	Accumulated Depreciation, Machine.....	108,171	
	Cash.....	60,000	
	Machine.....		165,828
	Gain on Disposal³.....		2,343
	<i>Sold machine for \$60,000.</i>		

Part 3(c)

30	Accumulated Depreciation, Machine.....	108,171	
	Cash.....	24,000	
	Loss on Disposal⁴.....	33,657	
	Machine.....		165,828
	<i>Received insurance settlement.</i>		

Calculations:

	Deprec. for 2014, 2015, 2016, 2017, 2018	Deprec. for 2019	
<u>Depreciation</u>			
1.	Accumulated depreciation = (20,604 × 5 years) + 5,151 =		<u>108,171</u>
2.	Gain (Loss) = Cash Proceeds – Book Value		
	= 36,000 – (165,828 – 108,171) =		<u>(21,657)</u>
3.	Gain (Loss) = Cash Proceeds – Book Value		
	= 60,000 – (165,828 – 108,171) =		<u>2,343</u>
4.	Gain (Loss) = Cash Proceeds – Book Value		
	= 24,000 – (165,828 – 108,171) =		<u>(33,657)</u>

Problem 10-16B (20 minutes)

2014

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

* **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	
	<i>To record depreciation.</i>			
2016				
Dec. 31	Depreciation Expense, Machine 366-91 ³	8,325		
	Accumulated Depreciation, Machine 366-91.....		8,325	
	<i>To record depreciation.</i>			
2019				
Dec. 31	Depreciation Expense, Machine 367-11 ⁵	7,155		
	Accumulated Depreciation, Machine 367-11.....		7,155	
	<i>To record depreciation.</i>			
2. Purchase/exchange/disposal of each machine				
2014				
May 1	Machine 366-90.....	72,900		
	Cash.....		72,900	
	<i>To record purchase of Machine 366-90.</i>			
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	
	<i>To record exchange of Machine 366-90.</i>			
2019				
Feb. 1	Cash.....	13,500		
	Accumulated Depreciation, Machine 366-91 ⁴	35,465		
	Loss on Disposal.....	985		
	Machine 366-91.....		49,950	
	<i>To record sale of Machine 366-91.</i>			
	1 Machine 367-11.....	79,650		
	Cash.....		79,650	
	<i>To record purchase of Machine 367-11.</i>			
2020				
Oct. 3	Cash.....	54,000		
	Accumulated Depreciation, Machine 367-11 ⁶	17,888		
	Loss on Disposal.....	7,762		
	Machine 367-11.....		79,650	
	<i>To record sale of Machine 367-11.</i>			

Problem 10-17B (continued)

Calculations:

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

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

3. Rate = $2/5 = .40$ or 40%
 $40\% \times 49,950 \times 5/12 = \underline{8,325}$

4.	2016:	8,325
	2017: $40\% \times (49,950 - 8,325) =$	16,650
	2018: $40\% \times (49,950 - 8,325 - 16,650) =$	9,990
	2019: $40\% \times (49,950 - 8,325 - 16,650 - 9,990) \times 1/12 =$	<u>500</u>
		<u>35,465</u>

5. $(79,650 - 8,100)/75,000 = \$0.954/\text{unit}$

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
		<u>7,155</u>
	Accum. Deprec.	<u>17,888</u>

Problem 10-18B (20 minutes)**Part 1****a.****2014**

Feb. 3	Patent.....	220,800	
	Cash.....		220,800
	<i>To record purchase of patent.</i>		

b.

Dec. 31	Amortization Expense, Patent.....	40,480	
	Accumulated Amortization, Patent.....		40,480
	<i>To record amortization on patent;</i>		
	<i>220,800 ÷ 5 = 44,160/year;</i>		
	<i>44,160 x 11/12 = 40,480.</i>		

Part 2

Abacus Software Group
Partial Balance Sheet
December 31, 2014

Assets**Current assets:**

Cash.....		\$103,200	
Accounts receivable (net).....		277,200	
Merchandise inventory.....		<u>135,600</u>	
Total current assets.....			\$ 516,000

Property, plant and equipment:

Land.....		\$110,400	
Building.....	\$595,200		
Less: Accumulated depreciation, building	<u>189,000</u>	406,200	
Equipment.....	\$477,600		
Less: Accumulated depreciation, equip.....	<u>259,200</u>	<u>218,400</u>	
Total property, plant and equipment			735,000

Intangible assets:

Patent.....		\$220,800	
Less: Accumulated amortization, patent.....		<u>40,480</u>	<u>180,320</u>
Total assets.....			<u>\$1,431,320</u>

Problem 10-19B (30 minutes)**Part 1****2014**

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

Part 2**2018**

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

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..... 28,800¹
 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..... 22,370²
 Accum. Deprec., Equipment..... 22,370
To record depreciation for 2014 on the equipment (sum of all components).

Calculations:

- $32,400 - 3,600 = 28,800$; $28,800 \div 5 \text{ yrs} = 5,760/\text{yr}$;
 $5,760 \times 4/12 = 1,920$ deprec. for 2009;
 $5,760/\text{yr} \times 4 \text{ yrs (2010 to 2013 inclusive)} = 23,040$;
 $5,760/\text{yr} \times 8/12$ (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	$144,000 - 36,000 = 108,000$; $108,000 \div 20 \text{ yrs} = 5,400/\text{yr}$; $5,400/\text{yr} \times 4/12 = 1,800$ deprec. for 2009; $5,400/\text{yr} \times 4 \text{ yrs (2010 to 2013 inclusive)} = 21,600$; $1,800 + 21,600 = 23,400$ accum. deprec. at Dec. 31/13; Revised deprec. = $144,000 - 23,400$ accum. deprec. = $120,600$ remaining book value; $120,600 - (36,000 - 12,000 =$ $24,000 \text{ residual value}) = 96,600$ remaining depreciable cost; $96,600 \div 20 \text{ yrs} =$	\$ 4,830
Engine	2009: $96,000 \times 2/10 \times 4/12 = 6,400$ 2010: $96,000 - 6,400 = 89,600 \times 2/10 = 17,920$ 2011: $89,600 - 17,920 = 71,680 \times 2/10 = 14,336$ 2012: $71,680 - 14,336 = 57,344 \times 2/10 = 11,469$ 2013: $57,344 - 11,469 = 45,875 \times 2/10 = 9,175$ 2014: $45,875 - 9,175 = 36,700 \times 2/10 =$	7,340
New Fan	$36,000 - 4,800 = 31,200$; $31,200 \div 5 \text{ yrs} = 6,240 \times 3/12 =$	1,560
Conveyor System	$126,000 - 39,600 = 86,400$; $86,400 \div 10 \text{ yrs} =$	8,640
Misc. Parts	2009: $27,600 \times 2/5 \times 4/12 = 3,680$ 2010: $27,600 - 3,680 = 23,920 \times 2/5 = 9,568$ 2011: $23,920 - 9,568 = 14,352 \times 2/5 = 5,741$ 2012: $14,352 - 5,741 = 8,611 \times 2/5 = 3,444$ 2013: $8,611 - 3,444 = 5,167 \times 2/5 = 2,067$ which exceeds max.; maximum that can be taken in 2013 is $5,167 - 4,800 =$ 367 ; therefore, no depreciation is taken in 2014	-0-
		<u>\$22,370</u>

Part 2

Total 2014 depreciation = $\$3,840 + \$22,370 = \underline{\underline{\$26,210}}$

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. $(454,000 - 40,000)/15 = 27,600/\text{year} \times 6/12 =$ 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. $(150,000 - 30,000)/250,000 = \$0.48/\text{unit} \times 45,000 =$ 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. $\$0.48/\text{unit} \times 65,000 =$ 31,200 for 2014

5. $(298,800 - 30,000)/7 = 38,400/\text{year} \times 10/12 =$ 32,000 for 2011
38,400 for 2012
38,400 for 2013
108,800 Accum. deprec. Dec. 31/13

6. $(298,800 - 30,000)/7 = 38,400/\text{year}$ depreciation for 2014

FFS 10-1 (continued)

7. $24,000 \times 2/5 \times 10/12 = 8,000$ for 2011
 $(24,000 - 8,000) \times 2/5 = 6,400$ for 2012
 $24,000 - (8,000 + 6,400) \times 2/5 = 3,840$ for 2013
18,240 Accum. deprec. Dec. 31/13
8. $[24,000 - (8,000 + 6,400 + 3,840)] \times 2/5 \times 3/12 = 576$ for 2014
9. $(103,800 - 0)/5 = 20,760/\text{year} \times 2/12 = 3,460$ 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	$96/168 \times 114,000$	= 65,143
Furniture	<u>72,000</u>	$72/168 \times 114,000$	= <u>48,857</u>
Totals	<u>168,000</u>		<u>114,000</u>

12. $65,143 \times 2/4 \times 9/12 = 24,429$ for 2014
13. $48,857 \times 2/5 \times 9/12 = 14,657$ 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.....	<u>5,184</u>
Total expenses.....	<u>505,206</u>
Net income.....	<u>\$444,794</u>

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

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

FFS 10-1 (continued)

1.

**Times TeleCom
Balance Sheet
December 31, 2014**

Assets**Current assets:**

Cash.....	\$ 30,000	
Accounts receivable.....	72,000	
Prepaid insurance.....	<u>15,600</u>	
Total current assets.....		\$ 117,600

Property, plant and equipment:

Land.....		\$280,000	
Building.....	\$454,000		
Less: Accumulated depreciation.....	<u>115,000</u>	339,000	
Machinery.....	\$150,000		
Less: Accumulated depreciation.....	<u>104,160</u>	45,840	
Truck.....	\$298,800		
Less: Accumulated depreciation.....	<u>147,200</u>	151,600	
Office equipment.....	\$ 65,143		
Less: Accumulated depreciation.....	<u>24,429</u>	40,714	
Furniture.....	\$ 48,857		
Less: Accumulated depreciation.....	<u>14,657</u>	<u>34,200</u>	
Total property, plant and equipment.....			891,354

Intangible assets:

Patent.....	\$103,800		
Less: Accumulated Amortization.....	<u>44,980</u>		<u>58,820</u>

Total assets.....		<u>\$1,067,774</u>
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Liabilities**Current liabilities:**

Accounts payable.....	\$ 68,000	
Unearned revenue.....	<u>53,800</u>	
Total current liabilities.....		\$ 121,800

Long-term liabilities:

Notes payable, due 2017.....	<u>284,000</u>	
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Total liabilities.....		\$ 405,800
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Equity

Susan Times, capital.....		<u>661,974</u>
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Total liabilities and equity.....		<u>\$1,067,774</u>
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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 $(\$1,767,543,000 / \$7,300,310,000) \times 100$.
- b. WestJet's property and equipment at December 31, 2011 is 55.02% of total assets calculated as $(\$1,911,227,000 / \$3,473,678,000) \times 100$.
- 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 $\$2,042,302,000 / \$7,300,310,000 \times 100$). 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 ($36,000/24 \text{ months} = 1,500/\text{month}$ insurance used $\times 10 \text{ months} = 15,000$ for 2012 vs. $36,000/5 \text{ yrs useful life} = 7,200$; $15,000 - 7,200 = 7,800$). 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 ($1,500 \text{ insurance expense per month} \times 12 \text{ months used} = 18,000 - \text{depreciation of } 7,200 = 10,800$). Net income in 2014 would have been understated by \$4,200 ($7,200 \text{ depreciation} - 3,000 \text{ insurance used} = 4,200$). 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.**