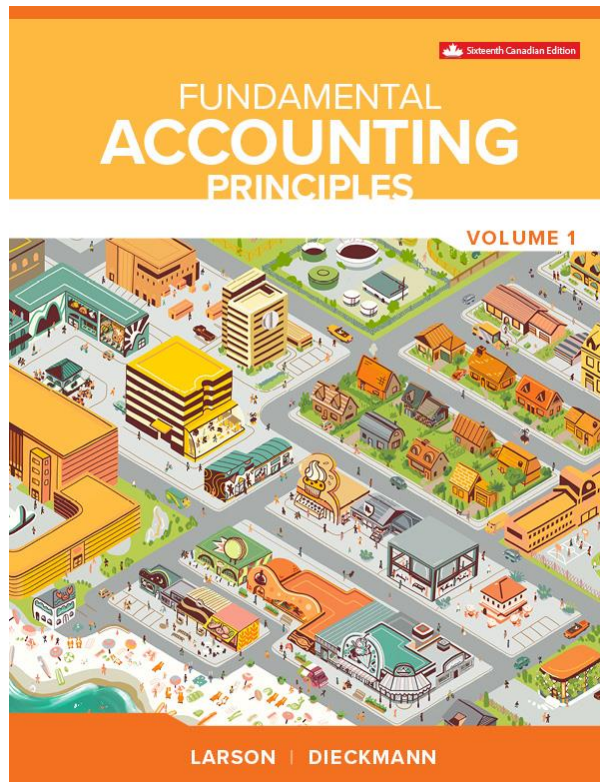


***Fundamental Accounting Principles Vol 2
(Canadian) 16th edition Larson Solutions Manual***

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SOLUTIONS MANUAL
to accompany
Fundamental Accounting Principles, Volume 2
16th Canadian Edition
by Larson/Dieckmann



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Chapter 9 Property, Plant and Equipment and Intangibles

Chapter Opening Critical Thinking Challenge Questions*

You are asked by the CFO of YVR to evaluate the newest capital asset, the Airside Operations Building at YVR, and to break it into major components for depreciation purposes. Identify at least five major components and determine an expected life for each of those components.

Components of the Airside Operations Building could include:

1. Building exterior walls	40 years
2. Roofing	25 years
3. Pavement	15 years
4. Landscaping	10 years
5. Electrical Components	15 years
6. Flooring	15 years
7. Plumbing	15 years
8. Furniture and Fixtures	15 years
9. Fire Equipment	20 years
10. Snow Removal Equipment	20 years

***The Chapter 9 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.**

Knowledge Check-Up Questions

- | | | | | |
|-------|-------|-------|-------|--------|
| 1. a) | 2. d) | 3. d) | 4. d) | 5. c) |
| 6. c) | 7. b) | 8. d) | 9. c) | 10. c) |

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. It is different from other assets such as receivables or inventory in that the property, plant and equipment is used within the operations of business to generate profit, whereas inventory is purchased or manufactured for resale. Receivables represent the amounts due from customers based on past transactions.
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. For example, cost includes such items as the invoice price paid, freight costs, non refundable sales taxes (PST, HST) and all costs incurred related to installing and testing an asset before it is put into use.
4. Land is an asset with an unlimited life and, therefore, is not subject to depreciation. Land improvements refer to items such as fencing, parking lots surfaces, landscape lighting and have limited lives and are depreciated over their useful lives.
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, such as the account Cash and Cash Equivalents. 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. 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. Betterments 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. After incurring a betterment, a depreciation policy also needs to be established.
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. Spin Master had Depreciation and amortization of 44,908 and 30,490 (thousands) in 2017 & 2016 as seen on the Consolidated statements of Cash flows. The explanation of the difference is found in Note 11 of the Financial Statements.
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. Types of intangible assets are patents, copyrights, leaseholds, drilling rights, and trademarks.**
- 12. WestJet reported \$59,517,000 as Intangible assets at December 31, 2017.**
- 13. A business can only record 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. WestJet did not report any Goodwill at December 31, 2017.**
- 15. When an asset is constructed, such as the development of a new runway, all costs for construction-related materials and labour costs can be capitalized. Also, any electricity and utilities consumed relating to the project, plus a reasonable amount for depreciation on any equipment used during construction. Other permitted costs include design fees, building materials and any interest charges on debt outstanding during the period of construction incurred to finance the project.**

QUICK STUDY

Quick Study 9-1 (5 minutes)

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

Quick Study 9-2 (10 minutes)

Invoice cost	\$11,000	
Freight costs.....	280	
Steel mounting	815	
Assembly	4,055	
Less: discount (\$11,000 × 2%).....	<u>(220)</u>	
Total acquisition costs	<u>\$15,925</u>	

Note: The \$50 gloves are an expense and therefore not capitalized.

Quick Study 9-3 (10 minutes)

1. (a) Repairs & Maintenance Expense
(b) Betterment
(c) Repairs & Maintenance Expense
(d) Betterment

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 a betterment.</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 a betterment.</i>		

Quick Study 9-4 (10 minutes)

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

2020

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 9-5 (10 minutes)

TechCom
Partial Balance Sheet
October 31, 2020

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 9-6 (10 minutes)

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

Quick Study 9-7 (10 minutes)

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

Year	Calculation	Annual Depreciation
2020	$\$.01 \times 650,000 =$	\$6,500
2021	$\$.01 \times 798,000 =$	7,980
2022	$\$.01 \times 424,000 =$	4,240
2023	$\$.01 \times 935,000 =$	9,350
2024	$\$.01 \times 1,193,000 =$	11,930
		<u>\$40,000</u>

Quick Study 9-8 (10 minutes)

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

Year	Calculation	Annual Depreciation
2020	$40\% \times \$86,000 =$	\$34,400
2021	$40\% \times (\$86,000 - \$34,400) =$	20,640
2022	$40\% \times (\$86,000 - \$34,400 - \$20,640) =$	12,384
2023	$40\% \times (\$86,000 - \$34,400 - \$20,640 - \$12,384) =$	2,576*
2024		<u>0</u>
		<u>\$70,000</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 2020 must be adjusted to \$2,576.

Quick Study 9-9 (10 minutes)

Computer panel:

\$4,000/8 years = \$500 depreciation

Dry-cleaning drum:

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

\$0.1625/garment × 62,000 garments = \$10,075 depreciation

Stainless steel housing:

\$85,000 - \$10,000 = \$75,000/20 years = \$3,750 depreciation

Miscellaneous parts:

\$26,000/2 years = \$13,000 depreciation

Total depreciation on the dry-cleaning equipment for 2020= \$500 + \$10,075 + \$3,750 + \$13,000 = \$27,325

Quick Study 9-10 (10 minutes)

	<u>2020</u>	<u>2021</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 9-11 (10 minutes)

	<u>2020</u>	<u>2021</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 2020

$20\% \times (60,000 - 10,000) = 10,000$ for 2021

b. $20\% \times 60,000 = 12,000 \times 6/12 = 6,000$ for 2020

$20\% \times (60,000 - 6,000) = 10,800$ for 2021

Quick Study 9-12 (10 minutes)

	<u>2020</u>	<u>2021</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 2020; $\$0.50 \times 28,000 = \$14,000$ for 2021

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 9-13 (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 9-14 (10 minutes)

2020

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 9-15 (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 9-16 (10 minutes)

a.

2020

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 9-17 (10 minutes)**2020**

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 9-18 (15 minutes)****2020**

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 9-19 (10 minutes)****2020**

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 9-20 (10 minutes)**2020**

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 9-21 (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 2020 =		<u><u>\$ 9,870</u></u>

EXERCISES

Exercise 9-1 (10 minutes)

Invoice cost	\$28,000
Freight costs.....	450
Steel mounting	985
Assembly	660
Raw materials for testing.....	310
Less: discount (\$28,000 × 1%).....	<u>(280)</u>
Total acquisition costs	<u>\$30,125</u>

Note: The \$380 repairs are an expense and therefore not capitalized.

Note: The special insurance is an expense and therefore not capitalized.

Exercise 9-2 (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:

2020

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 9-3 (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:

2020			
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 9-4 (20 minutes)**2020**

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	<u>345,600</u>	$345,600 \div 3,840,000 = .09$ or 9%	<u>388,800</u> 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 9-5 (10 minutes)

2020

Jan. 1	Truck	87,000	
	Cash.....		87,000

Calculation:

$$52,500 + 21,000 + 7,500 + 6,000 = 87,000$$

Jan. 4	Prepaid Insurance	5,100	
	Gas Expense.....	225	
	Cash.....		5,325

2020

Dec 31	Depreciation Expense, Truck	15,600	
	Accumulated Depreciation, Truck		15,600
	<i>To record depreciation.</i>		

Calculation:

$$[(52,500 + 21,000 + 7,500 + 6,000) - 9,000] / 5 \text{ years} = 15,600$$

Note: Insurance expense entries could also be made, to move from prepaid insurance, although not required in question.

Exercise 9-6 (15 minutes)

Year	a. Straight-Line	b. Double-Declining-Balance	c. Units-of-Production
2018	\$32,550	\$75,100	\$26,880
2019	\$32,550	\$37,550	\$28,910
2020	\$32,550	\$17,550	\$36,890
2021	\$32,550		\$37,520
Total	\$130,200	\$130,200	\$130,200

Explanation:**a.**

$$(\$150,200 - \$20,000)/4 = \$32,550/\text{year}$$

b.

Double-declining-balance (Rate = $2/4 = 0.50$ or 50%):

$$50\% \times \$150,200 = \$75,100$$

$$50\% \times (\$150,200 - \$75,100) = \$37,550$$

Maximum depreciation is limited to \$130,200 which is cost less residual (\$150,200 – \$20,000) therefore depreciation for 2020 is \$17,550 calculated as \$130,200 – \$112,650 accumulated depreciation recorded to date.

c.

Units-of-production: (Rate = $[(\$150,200 - \$20,000)/186,000] = \$0.70/\text{unit}$)

$$\$26,880 (\$0.70 \times 38,400)$$

$$\$28,910 (\$0.70 \times 41,300)$$

$$\$36,890 (\$0.70 \times 52,700)$$

Maximum depreciation is limited to \$130,200 which is cost less residual (\$150,200 – \$20,000) therefore depreciation for 2021 is \$37,520 calculated as \$130,200 – \$92,680 accumulated depreciation recorded to date.

Exercise 9-7 (15 minutes)

a. $(\$305,200 - \$52,400)/5 = \$50,560$

b.

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

$40\% \times \$305,200 = \$122,080$

c.

Rate = $(\$305,200 - \$52,400)/320,000 \text{ km} = \$0.79/\text{km}$

$\$0.79/\text{km} \times 30,000 \text{ km} = \$23,700$

Analysis component:

The units-of-production method will produce the highest profit in 2020 because it is the lowest depreciation expense for 2020.

Exercise 9-8 (30 minutes)

	<u>Straight-Line¹</u>		<u>Double-Declining-Balance²</u>		<u>Units-of-Production³</u>	
Year	Depreciation Expense	Book Value at December 31	Depreciation Expense	Book Value at December 31	Depreciation Expense	Book Value at December 31
2020	21,250	104,000	50,100	75,150	16,875	108,375
2021	21,250	82,750	30,060	45,090	22,250	86,125
2022	21,250	61,500	18,036	27,054	30,000	56,125
2023	21,250	40,250	8,054	19,000	37,125	19,000
2024	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.
- $125,250 - 19,000 = 106,250/8,500 = \$12.50/\text{hour}$;
 2020– $12.50 \times 1,350 = 16,875$;
 2021– $12.50 \times 1,780 = 22,250$;
 2022– $12.50 \times 2,400 = 30,000$;
 2023– $12.50 \times 2,980 = 37,250$; 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:

- 2020– Units-of-production; 2023– Straight-line
- 2020– Double-declining-balance; 2023– Units-of-production

Exercise 9-9 (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	<u>70,000</u>	$70,000 \div 2,100,000 = .033$ or 3.33%	<u>84,000</u> ⁴
Totals	<u>\$ 2,100,000</u>		<u>\$ 2,520,000</u>

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

PPE Asset	Cost	2020 Depreciation	2021 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	$84,000 \times 2/3 = 56,000$	$(84,000 - 56,000) \times 2/3 = 18,667$

- 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 9-10 (20 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost	Residual	Life	Balance of Accum. Deprec. Dec. 31, 2019	Depreciation Expense for 2020	Balance of Accum. Deprec. Dec. 31, 2020
Building	2 May 2014	S/L	\$650,000	\$250,000	10 yr.	\$226,667	\$40,000 ¹	\$266,667 ²
Modular Furniture	2 May 2014	S/L	72,000	0	6 yr.	68,000	4,000 ³	72,000 ⁴
Truck	25 Jan 2017	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 2014 $[(72,000 - 0)/6 = \$12,000 \text{ per year} \times 8/12]$ plus 12,000 in years 2015 – 2019) = 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. Dynamic uses the straight-line method and the double-declining balance method for its assets, which are both acceptable under GAAP. Dynamic has likely chosen different methods for depreciating its assets to better reflect the usage pattern of each asset, which is acceptable under GAAP.

Exercise 9-11 (15 minutes)

DYNAMIC EXPLORATION
Partial Balance Sheet
December 31, 2019

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 9-12 (15 minutes)**a. Straight-line depreciation:**

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Totals
Profit before depreciation	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$900,000
Depreciation expense ¹	73,980	73,980	73,980	73,980	73,980	369,900
Profit	<u>\$106,020</u>	<u>\$106,020</u>	<u>\$106,020</u>	<u>\$106,020</u>	<u>\$106,020</u>	<u>\$530,100</u>

b. Double-declining-balance depreciation:

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Totals
Profit before depreciation	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$900,000
Depreciation expense ² ...	193,560	116,136	60,204	0	0	369,900
Profit (loss)	<u>\$(13,560)</u>	<u>\$63,864</u>	<u>\$119,796</u>	<u>\$180,000</u>	<u>\$180,000</u>	<u>\$530,100</u>

a. $(\$483,900 - \$114,000)/5 = \$73,980$

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

Depreciation expenses:

Year 1: $\$483,900 \times 40\% = \$193,560$

Year 2: $(\$483,900 - \$193,560) \times 40\% = \$116,136$

Year 3: \$60,204 max. depreciation expense (calculated as $\$483,900 - \$114,000 - \$193,560 - \$116,136 = \$60,204$)

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 9-13 (15 minutes)

	Depreciation	
Year	Straight-Line¹	Units-of-Production³
2018	7,800	23,220
2019	23,400	42,660
2020	23,400	34,560

1. Straight-Line:

$$\$168,000 - \$27,600 = \$140,400/6 = \$23,400 \times 4/12 = \$7,800$$

2. Units-of-Production:

$$\$168,000 - \$27,600 = \$140,400/260,000 = \$0.540/\text{unit};$$

$$\$0.540 \times 43,000 = \$23,220;$$

$$\$0.540 \times 79,000 = \$42,660;$$

$$\$0.540 \times 64,000 = \$34,560.$$

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 9-14 (25 minutes)

	Depreciation	
Year	Straight-Line ¹	Double-Declining-Balance ²
2019	11,000	22,000
2020	22,000	35,200
2021	22,000	21,120

Calculations:

- $110,000/5 = 22,000 \times 6/12 = 11,000$
- $2/5 = .4$ 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 2019 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 2019 while assets and equity would have been understated on the balance sheet for the same year.

Exercise 9-15 (10 minutes)

	(a)	(b)
<u>Year</u>	<u>Straight-Line</u>	<u>Double-Declining-Balance</u>
2020	$(125,000 - 12,500)/5 = 22,500 \times 9/12 = 16,875$	Rate = $2/5 = .40$ or 40% $125,000 \times 40\% \times 9/12 = 37,500$
2021	$(125,000 - 12,500)/5 = 22,500$	$(125,000 - 37,500) \times 40\% = 35,000$

Exercise 9-16 (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 9-17 (15 minutes)**2023**

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

Calculations:

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

$$\text{*2020 depreciation} = 8,400 (71,200 - 15,200)/5 = 11,200 \times 9/12$$

$$\text{2021 depreciation} = 11,200$$

$$\text{2022 depreciation} = \underline{11,200}$$

$$\begin{array}{ll} \text{Accumulated} & \\ \text{depreciation} & \underline{30,800} \end{array}$$

Exercise 9-18 (20 minutes)**Part 1****2020**

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

Part 2**2020**

Dec. 31	Depreciation Expense, Warehouse	14,700	
	Accumulated Depreciation, Warehouse....		14,700

To record revised depreciation on warehouse;

$$\$292,500 - \$90,000 = \$202,500; \$202,500 \div 15 \text{ yrs} = \$13,500$$

$$\text{PLUS } \$25,500 - \$7,500 = \$18,000; \$18,000 \div 15 \text{ yrs} = \$1,200;$$

$$\text{Total depreciation on the warehouse} = \$13,500 + \$1,200 = \$14,700.$$

Exercise 9-19 (30 minutes)**Part 1**

2020			
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

2021			
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	2021 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 Building	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

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

Exercise 9-20 (20 minutes)**a.****2020**

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

b.

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

c.

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

d.

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

Exercise 9-21 (15 minutes)

To record partial year's depreciation in 2021:

2021			
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 years = 190,800

Exercise 9-22 (10 minutes)

a. \$202,000 – \$111,000 = \$91,000 book value

b.

Book value of the assets given up = (\$91,000 + \$170,000)	=	\$261,000
Less: Fair value of assets given up (\$68,000 + \$170,000)	=	\$238,000
Loss on exchange		\$23,000

c. & d. Tractor (new) = \$68,000 + \$170,000 = \$238,000

d.

2020			
Oct. 6	Tractor (new)*	238,000	
	Accumulated Depreciation, Tractor (old)	111,000	
	Loss on Exchange	23,000	
	Cash		170,000
	Tractor (old)		202,000
<i>To record exchange of old tractor for a new one.</i>			

Exercise 9-23 (20 minutes)**a.****2020**

Nov. 3	Accumulated Depreciation, Computer (old)	65,000	
	Computer (new)¹	175,000	
	Computer (old)		150,000
	Cash		90,000

To record exchange of computers.

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

b.**2020**

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

To record exchange of computers.

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

Analysis component:

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

Exercise 9-24 (25 minutes)**(a)**

Jan. 2	Accumulated Depreciation, Machine.....	50,450	
	Cash.....	44,500	
	Loss on Disposal	1,050	
	Machine.....		96,000
	<i>To record sale of machine;</i>		
	<i>44,500 – (96,000 – 50,450) = 1,050 loss.</i>		

(b)

Jan. 2	Accumulated Depreciation, Machine.....	50,450	
	Tools.....	134,550	
	Cash		89,000
	Machine.....		96,000
	<i>To record exchange of machine;</i>		
	<i>Value of assets given up = \$89,000 cash + \$45,550</i>		
	<i>book value of the old machine = \$134,550.</i>		

(c)

Jan. 2	Accumulated Depreciation, Machine.....	50,450	
	Van.....	116,000	
	Loss on Disposal	9,550	
	Cash		80,000
	Machine.....		96,000
	<i>To record exchange of machine;</i>		
	<i>116,000 – (80,000 + 45,550) = 9,550 loss.</i>		

(d)

Jan. 2	Accumulated Depreciation, Machine.....	50,450	
	Land.....	87,000	
	Machine.....		96,000
	Cash		37,000
	Gain on Disposal		4,450
	<i>To record exchange;</i>		
	<i>87,000 – (37,000 + 45,550) = 4,450 gain.</i>		

Exercise 9-25 (10 minutes)

2020			
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 9-26 (15 minutes)**Part 1**

2020			
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

2020			
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>	
2021			
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 9-27 (25 minutes)

Huang Resources
Balance Sheet
October 31, 2020

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	

Non-current liabilities:

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

Sally Huang, 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 9-28 (35 minutes)

Montalvo Bionics
Balance Sheet
April 30, 2020

Assets**Current assets:**

Cash		\$ 10,100	
Accounts receivable	\$17,300		
Less: Allowance for doubtful accounts.....	<u>1,010</u>	16,290	
Prepaid rent		<u>1,355¹</u>	
Total current assets			\$ 27,745

Property, plant and equipment:

Furniture	\$22,700		
Less: Accumulated depreciation.....	<u>14,730²</u>	\$ 7,970	
Machinery	\$50,800		
Less: Accumulated depreciation	<u>22,700³</u>	<u>28,100</u>	
Total property, plant and equipment.....			36,070

Intangible assets:

Patent		\$24,900	
Less: Accumulated amortization.....		<u>830⁴</u>	<u>24,070</u>
Total assets.....			<u>\$87,885</u>

Liabilities**Current liabilities:**

Accounts payable	\$5,080		
Unearned revenues	5,870		
Current portion of long-term note	<u>6,500</u>		
Total current liabilities		\$ 17,450	

Non-current liabilities:

Note payable, less current portion		<u>8,100</u>	
Total liabilities.....			\$25,550

Equity

Josh Montalvo, capital			<u>62,335⁵</u>
Total liabilities and equity.....			<u>\$87,885</u>

Calculations:

1. $\$16,260 \times 11/12 = \$14,905$ rent used; $\$16,260 - \$14,905 = \$1,355$ remaining in Prepaid Rent.
2. $\$22,700 \div 5 = \$4,540$; $\$4,540 + \$10,190 = \$14,730$ accum. dep.
3. $\$50,800 - \$20,200 = \$30,600$; $\$30,600 \times 2/10 = \$6,120$; maximum depreciation is $\$50,800 - \$28,100 = \$22,700$ therefore 2020 depreciation expense is $\$2,500$ and accum. dep. is $\$20,200 + \$2,500 = \$22,700$.
4. $\$24,900 \div 15 = \$1,660/\text{year}$; $\$1,660 \times 6/12 = \830 .
5. $\$32,910$ unadjusted capital + $\$225,400$ revenues – $\$83,900$ withdrawals – $\$89,300$ expenses – $\$4,540$ dep. furniture – $\$2,500$ dep. machinery – $\$830$ amort. patent – $\$14,905$ rent expense = $\$62,335$ post-closing capital.

Exercise 9-29**2018**

April 1	Food Truck.....	52,000	
	Oven	6,000	
	Prepaid Insurance	3,600	
	Cash		61,600

To record the purchase of food truck, oven and insurance.

Oct 1	Repairs Expense.....	1,800	
	Cash.....		1,800

To record repairs for truck

Dec 31	Insurance Expense.....	2,700	
	Prepaid Insurance.....		2,700

To record 9 months of insurance expense

Dec 31	Depreciation Expense, Truck.....	6,300	
	Accumulated Depreciation, Truck		6,300

*To record depreciation of truck;**Calculation:*

$$[(48,000 + 4,000) - 10,000] / 5 \text{ years} = 8,400 \times 9/12 = \$6,300.$$

31	Depreciation Expense, Oven	750	
	Accumulated Depreciation, Oven		750

To record depreciation of oven;

$$(\$6,000 - 1000) \div 5 \text{ yrs} = \$1,000/\text{year} \times 9/12 = \$750.$$

2019

April 1	Repair Expense.....	2,100	
	Prepaid Insurance	3,600	
	Cash		5,700

To record purchase of tires and insurance for year

Dec 31	Insurance Expense.....	3,600	
	Prepaid Insurance.....		3,600
	<i>To record 1 year of insurance expense.</i>		
Dec 31	Depreciation Expense, Truck	8,400	
	Accumulated Depreciation, Truck.....		8,400
	<i>To record depreciation of truck;</i>		
	<i>Calculation:</i>		
	<i>[(48,000 + 4,000) – 10,000] / 5 years = 8,400</i>		
31	Depreciation Expense, Oven	1,000	
	Accumulated Depreciation, Oven.....		1,000
	<i>To record depreciation of oven;</i>		
	<i>(\$6,000-1000) ÷ 5 yrs = \$1,000/year</i>		
2020			
Mar 31	Depreciation Expense, Truck.....	2,100	
	Accumulated Depreciation, Truck.....		2,100
	<i>To record partial year depreciation in</i>		
	<i>year of disposal; 8,400 × 3/12 = 2,100.</i>		
Mar 31	Depreciation Expense, Oven.....	250	
	Accumulated Depreciation, Oven		250
	<i>To record partial year depreciation in</i>		
	<i>year of disposal; 1000 × 3/12 = 250.</i>		
Mar 31	Accumulated Depreciation, Truck	16,800	
	Accumulated Depreciation, Oven	2,000	
	Cash.....	21,000	
	Loss on Disposal	18,200	
	Truck		52,000
	Oven		6,000
	<i>To record loss on sale of truck;</i>		
	<i>16,800+2,000+21,000-52,000-6,000=18,200</i>		

Exercise 9-30 (30 minutes)*Part 1****2020**

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 31/19	Dep. Exp. Dec 31/20	Dep. Exp. Dec 31/21
Truck body	Jul 7/18	\$ 28,000	-0-	10 yr	\$ 4,200	\$ 2,800 ¹	\$ 2,800 ¹
Motor	Jul 7/18	8,000	-0-	10 yr	1,200	800 ²	800 ²
Tool Carrier	Jul 3/20	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 2020

Part 3

Book value of truck at December 31, 2020:

$\$45,600 \text{ total cost} - (\$5,400 + \$4,200 = \$9,600) = \$36,000$

Book value of truck at December 31, 2021:

$\$36,000 - \$4,800 = \$31,200$

PROBLEMS**Problem 9-1A (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*	\$2,924,800	\$1,051,100		\$594,100	
Demolition.....	703,160				
Landscaping	272,020				
New building			\$2,476,000		
New improvements...					\$254,600
Totals.....	<u>\$3,899,980</u>	<u>\$1,051,100</u>	<u>\$2,476,000</u>	<u>\$594,100</u>	<u>\$254,600</u>

*Allocation of purchase price:

	<u>Appraised Value</u>	<u>Percent of Total</u>	<u>Apportioned Cost</u>
Land	\$2,990,720	64%	\$2,924,800
Building Two.....	1,074,790	23	1,051,100
Land Improvements One	<u>607,490</u>	<u>13</u>	<u>594,100</u>
Totals	<u>\$4,673,000</u>	<u>100%</u>	<u>\$4,570,000</u>

Part 2

Mar. 31	Land.....	3,899,980	
	Building Two	1,051,100	
	Building Three.....	2,476,000	
	Land Improvements One	594,100	
	Land Improvements Two.....	254,600	
	Cash.....		8,275,780
	<i>To record costs of plant assets.</i>		

Problem 9-2A (25 minutes)

Derlak Enterprises Balance Sheet December 31				
		2020		2019
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>	144,000	<u>97,600</u>	155,200
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>	12,000	<u>2,400</u>	13,600
Total intangible assets		34,400		44,000
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
Non-current 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 2019. In 2020, the assets are financed largely by debt. The change from 2019 to 2020 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 9-3A (25 minutes)

Year	a. Straight-Line	b. Double-Declining-Balance	c. Units-of-Production
2018	\$33,250	\$84,000	\$27,930
2019	\$33,250	\$42,000	\$30,485
2020	\$33,250	\$7,000	\$37,940
2021	\$33,250		\$36,645
Total	\$133,000	\$133,000	\$133,000

Explanation:**a.**

$$(\$168,000 - \$35,000)/4 = \$33,250/\text{year}$$

b.

Double-declining-balance (Rate = $2/4 = 0.50$ or 50%):

$$50\% \times \$168,000 = \$84,000$$

$$50\% \times (\$168,000 - \$84,000) = \$42,000$$

Maximum depreciation is limited to \$133,000 which is cost less residual (\$168,000 – \$35,000) therefore depreciation for 2021 is \$7,000 calculated as \$133,000 – \$126,000 accumulated depreciation recorded to date.

c.

Units-of-production: (Rate = $[(\$168,000 - \$35,000)/190,000] = \$0.70/\text{unit}$)

$$\$27,930 (\$0.70 \times 39,900)$$

$$\$30,485 (\$0.70 \times 43,550)$$

$$\$37,940 (\$0.70 \times 54,200)$$

Maximum depreciation is limited to \$133,000 which is cost less residual (\$168,000 – \$35,000) therefore depreciation for 2020 is \$36,645 calculated as \$133,000 – \$96,355 accumulated depreciation recorded to date.

Problem 9-4A (25 minutes)**1. Purchased January 1, 2020****2020****2021****2022****A. Double-declining-balance method**

Equipment.....	\$415,000	\$415,000	\$415,000
Less: Accumulated depreciation.....	83,000	149,400	202,520
Year-end book value.....	\$332,000	\$265,600	\$212,480
Depreciation expense for the year ¹	\$83,000	\$66,400	\$53,120

B. Straight-line method

Equipment.....	\$415,000	\$415,000	\$415,000
Less: Accumulated depreciation.....	39,000	78,000	117,000
Year-end book value.....	\$376,000	\$337,000	\$298,000
Depreciation expense for the year	\$39,000 ²	\$39,000	\$39,000

1. Rate = $2/10 = 0.20$ or 20%

2020: $0.20 \times 415,000 = 83,000$

2021: $0.20 \times (415,000 - 83,000) = 66,400$

2022: $0.20 \times (415,000 - 83,000 - 66,400) = 53,120$

2. $(415,000 - 25,000)/10 = 39,000$ **2. Purchased July 1, 2020****2020****2021****2022****A. Double-declining-balance method**

Equipment.....	\$415,000	\$415,000	\$415,000
Less: Accumulated depreciation.....	41,500	116,200	175,960
Year-end book value.....	\$373,500	\$298,800	\$239,040
Depreciation expense for the year ³	\$41,500 ⁴	\$74,700	\$59,760

B. Straight-line method

Equipment.....	\$415,000	\$415,000	\$415,000
Less: Accumulated depreciation.....	19,500	58,500	97,500
Year-end book value.....	\$395,500	\$356,500	\$317,500
Depreciation expense for the year	\$19,500 ⁴	\$39,000	\$39,000

3. Rate = $2/10 = 0.20$ or 20%

2020: $0.20 \times 415,000 \times 6/12 = 41,500$

2021: $0.20 \times (415,000 - 41,500) = 74,700$

2022: $0.20 \times (415,000 - 41,500 - 74,700) = 59,760$

4. $(415,000 - 25,000)/10 = 39,000 \times 6/12 = 19,500$

Problem 9-5A (25 minutes)

Year	Depreciation Method ¹ :		
	Straight-line	Double-declining balance	Units-of-production ²
2020	$(828,000 - 192,000)/10 = 63,600/\text{year} \times 10/12 = 53,000$	Rate = $2/10 = .20$ or 20% $828,000 \times 20\% \times 10/12 = 138,000$	Rate = $(828,000 - 192,000)/13,250 = 48/\text{hour}$ $48 \times 720 = 34,560$
2021	63,600	$(828,000 - 138,000) \times 20\% = 138,000$	$48 \times 1,780 = 85,440$
2022	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: 2020: 720; 2021: 1,780; 2022: 1,535.

Analysis component:

If you could ignore the matching principle, you might record the purchase of the boats as boat expense which means the entire cost of \$828,000 would have been expensed in 2020, the year of purchase. This would have resulted in the net income being understated in 2020 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 boat expense 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 9-6A (25 minutes)

Year	Depreciation Method ¹ :		
	Straight-line	Double-declining balance	Units-of-production ²
2020	$(828,000 - 192,000)/10 = 63,600/\text{year} \times 6/12 = 31,800$	Rate = $2/10 = .20$ or 20% $828,000 \times 20\% \times 6/12 = 82,800$	Same as Problem 9-4A; Units-of-production is usage based and not affected by time 34,560
2021	63,600	$(828,000 - 82,800) \times 20\% = 149,040$	85,440
2022	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: 2020: 720; 2021: 1,780; 2022: 1,535.

Problem 9-7A (15 minutes)

1.

2020

Apr. 30	Depreciation Expense, Building.....	53,000	
	Accumulated Depreciation, Building		53,000
	<i>To record annual depreciation;</i>		
	<i>742,000/14 = 53,000.</i>		
30	Depreciation Expense, Equipment.....	77,184	
	Accumulated Depreciation, Equipment		77,184
	<i>To record annual depreciation;</i>		
	<i>Rate = 2/10 = .20 or 20%;</i>		
	<i>385,920 × 20% = 77,184.</i>		

2.

Big Sky Farms
Partial Balance Sheet
April 30, 2021

Property, plant and equipment:

Land		\$730,000
Building.....	\$742,000	
Less: Accumulated depreciation.....	<u>636,000</u>	106,000
Equipment	670,000	
Less: Accumulated depreciation.....	<u>361,264</u>	<u>308,736</u>
Total property, plant and equipment.....		<u><u>\$1,144,736</u></u>

Problem 9-8A (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>\$1,360,000</u>	<u>100%</u>	<u>\$1,260,000</u>

2020

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 2020 straight-line depreciation on building:

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

Part 3 2020 double-declining-balance depreciation on land improvements:

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

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

Analysis component:

If the assets purchased on March 1, 2020 were put into service on May 23, 2020 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 9-9A (30 minutes)

<u>Year</u>	<u>Straight-Line^a</u>	<u>Units-of-Production^b</u>	<u>Double-Declining-Balance^c</u>
2020	\$ 38,000	\$ 20,544	\$ 84,000
2021	114,000	117,504	210,000
2022	114,000	114,816	105,000
2023	114,000	113,472	52,500
2024	<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:

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

<i>Year</i>	<i>Units</i>	<i>Unit Cost</i>	<i>Depreciation</i>
2020	21,400	\$0.96	\$ 20,544
2021	122,400	0.96	117,504
2022	119,600	0.96	114,816
2023	118,200	0.96	113,472
2024	102,000	0.96	<u>89,664*</u>
Total			<u>\$456,000</u>

**Take only enough depreciation in Year 2024 to reach the maximum accumulated depreciation of \$456,000 (which is cost less residual).*

^cDouble-declining-balance:

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

$$2020: 50\% \times 504,000 \times 4/12 = 84,000$$

$$2021: 50\% \times (504,000 - 84,000) = 210,000$$

$$2022: 50\% \times (504,000 - 84,000 - 210,000) = 105,000$$

$$2023: 50\% \times (504,000 - 84,000 - 210,000 - 105,000) = 52,500$$

$$2024: 456,000 - 451,500^* = 4,500$$

**Take only enough depreciation in Year 2024 to reach the maximum accumulated depreciation of \$456,000 (which is cost less residual).*

Problem 9-10A (30 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost	Residual	Life	Balance of Accum. Deprec. Dec. 31, 2020	Deprec. Expense for 2021	Balance of Accum. Deprec. Dec. 31, 2021
Office Equipment	March 27/17	Straight-line	\$52,000	\$14,000	10 yr.	14,250 ¹	3,800 ²	18,050 ³
Machinery	June 4/17	Double-declining balance	\$275,000	\$46,000	6 yr.	209,362 ⁴	19,638 ⁵	229,000 ⁶
Truck	Nov. 13/20	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%
 2017: $33.33\% \times 275,000 \times 7/12 = 53,472$
 2018: $33.33\% \times (275,000 - 53,472) = 73,843$
 2019: $33.33\% \times (275,000 - 53,472 - 73,843) = 49,228$
 2020: $33.33\% \times (275,000 - 53,472 - 73,843 - 49,228) = \underline{32,819}$
 Accumulated depreciation at Dec. 31, 2020 = \$209,362
- 2021: $(275,000 - 46,000) - 209,362 = \$19,638$
- $\$209,362 + \$19,638 = 229,000$
- 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 9-11A (20 minutes)**2020**

Mar. 26	Delivery Truck	96,200	
	Cash.....		96,200
	<i>To record purchase of new truck; \$92,000 plus \$4,200 freight costs.</i>		
Dec. 31	Depreciation Expense, Delivery Truck¹	12,930	
	Accumulated Depreciation, Delivery Truck.....		12,930
	<i>To record depreciation from Mar. 26 to Dec. 31, 2020.</i>		

2021

Dec. 31	Depreciation Expense, Delivery Truck²	21,160	
	Accumulated Depreciation, Delivery Truck.....		21,160
	<i>To record depreciation.</i>		

$$1. (96,200 - 10,000)/5 \times 9/12 = 12,930$$

$$2. \frac{96,200 - 12,930 - 14,500}{4 - 9/12 = 3.25} = 21,160$$

Problem 9-12A (30 minutes)**2021**

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:

$$1. \frac{\text{Cost} \quad \text{Accumulated Depreciation} \quad \text{Residual}}{556,800 - \quad 246,400 - \quad 120,000} = 95,200$$

2

$$2. \frac{\text{Cost} \quad \text{Accumulated Depreciation} \quad \text{Residual}}{89,600 - \quad 49,600 - \quad (11,200 - 6,400)} = 11,733$$

5 - 2 = 3

Problem 9-13A (20 minutes)**Part 1****2020**

Jan. 7	Machine #5027 – Blade (new)	10,400	
	Accumulated Depreciation, Machine #5027 – Blade	2,688¹	
	Loss on Disposal	5,032	
	Machine #5027 – Blade (old)		7,720
	Cash.....		10,400

To record installation of replacement blade.**Calculations:**

1. $7,720 - 1,000 = 6,720$; $6,720 \div 5 \text{ yrs} = 1,344$ deprec. for 2018;
 $1,344 + 1,344$ deprec. for 2019 = 2,688 accum. deprec. at Dec. 31, 2019.

Part 2

Metal	$44,000 - 8,000 = 36,000$; $36,000 \div 15 \text{ yrs} = 2,400$ for 2018 PLUS	
Housing	$2,400$ for 2019 = $4,800$ accum. deprec. at Dec. 31/2019; 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	2018: $26,000 \times 2/10 = 5,200$ 2019: $26,000 - 5,200 = 20,800 \times 2/10 = 4,160$ 2020: $20,800 - 4,160 = 16,640 \times 2/10 =$	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 2020=		<u>\$6,908</u>

Problem 9-14A (40 minutes)

Part 1

2020

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 9-14A (concluded)**Part 2**

Safety-First Company
Balance Sheet
October 31, 2020

Assets**Current assets:**

Cash		\$ 11,000	
Accounts receivable	\$ 19,800		
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	\$136,400		
Less: Accumulated depreciation	<u>79,200</u>	57,200	
Equipment	\$66,000 ¹		
Less: Accumulated depreciation	<u>37,400</u>	28,600	
Furniture	\$36,300 ²		
Less: Accumulated depreciation	<u>20,900</u>	<u>15,400</u>	
Total property, plant and equipment			<u>206,800</u>
Total assets			<u>\$271,920</u>

Liabilities**Current liabilities:**

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

Non-current liabilities:

Note payable, less current portion	<u>59,400</u>	
--	---------------	--

Total liabilities		\$104,940
-------------------------	--	-----------

Equity

Tarifa Sharma, capital		<u>166,980</u> ³
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 9-15A (30 minutes)

1.

2021

Sept. 27	Depreciation Expense, Building.....	4,950	
	Accumulated Depreciation, Building ¹		4,950
	<i>To record building depreciation for 2021.</i>		
27	Cash	592,000	
	Accumulated Depreciation, Building ²	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, Equipment ³		16,133
	<i>To record equipment depreciation for 2021.</i>		
2	Cash	56,800	
	Accumulated Depreciation, Equipment ⁴	90,533	
	Loss on Disposal	23,867	
	Equipment		171,200
	<i>To record sale of equipment.</i>		

1. Depreciation from Jan. 1, 2021 to Sept. 27, 2021

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

$$4,950 + 393,600 = 398,550$$
3. Depreciation from Jan. 1, 2021 to Nov. 2, 2021
 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 9-16A (45 minutes)

1.

2020

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.

2020

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>		

2025

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, Machine¹	98,210	
	Cash	21,000	
	Loss on Disposal²	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 Disposal³		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 Disposal⁴		770
	<i>Received insurance settlement.</i>		

Problem 9-16A (continued)

- | | |
|-----------------------------|--|
| | <div style="display: inline-block; width: 40%; text-align: center;">Deprec. for 2020, 2021,
2022, 2023, and 2024.</div> <div style="display: inline-block; width: 40%; text-align: center;">Accum.
Deprec.
for 2025.</div> |
| 1. Accumulated depreciation | $= (17,080 \times 5 \text{ years}) + 12,810 = \underline{\underline{98,210}}$ |
| 2. Gain (Loss) | $= \text{Cash Proceeds} - \text{Book Value}$
$= 21,000 - (123,200 - 98,210) = \underline{\underline{(3,990)}}$ |
| 3. Gain (Loss) | $= \text{Cash Proceeds} - \text{Book Value}$
$= 27,300 - (123,200 - 98,210) = \underline{\underline{2,310}}$ |
| 4. Gain (Loss) | $= \text{Cash Proceeds} - \text{Book Value}$
$= 25,760 - (123,200 - 98,210) = \underline{\underline{770}}$ |

Problem 9-17A (15 minutes)

- 2020**
- | | | | |
|--------------------|--|------------------|---------------|
| 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 9-18A (45 minutes)**a. Depreciation expense on first December 31 of each machine's life****2020**

Dec. 31	Depreciation Expense, Machine 1550¹.....	6,075	
	Accumulated Depreciation, Machine 1550		6,075
	<i>To record depreciation.</i>		

2023

Dec. 31	Depreciation Expense, Machine 1795³.....	22,646	
	Accumulated Depreciation, Machine 1795		22,646
	<i>To record depreciation.</i>		

2024

Dec. 31	Depreciation Expense, Machine BT-311⁵.....	77,810	
	Accum Depreciation, Machine BT-311		77,810
	<i>To record depreciation.</i>		

b. Purchase/exchange/disposal of each machine.**2020**

Apr. 1	Machine 1550.....	52,900	
	Cash.....		52,900
	<i>To record purchase of Machine 1550.</i>		

2023

Mar. 29	Machine 1795 (= assets given up).....	60,390	
	Accumulated Depreciation, Machine 1550²	24,300	
	Machine 1550		52,900
	Cash.....		31,790
	<i>To record exchange of Machine 1550.</i>		

2024

Oct. 2	Machine BT-311	537,000	
	Accumulated Depreciation, Machine 1795⁴	36,800	
	Loss on Disposal	3,590	
	Machine 1795		60,390
	Cash.....		517,000
	<i>To record exchange of Machine 1795.</i>		

2027

Aug. 21	Cash	81,200	
	Accumulated Depreciation, Machine BT-311⁶	348,890	
	Loss on Disposal	106,910	
	Machine BT-311		537,000
	<i>To record sale of Machine BT-311.</i>		

Problem 9-18A (continued)**Calculations:**

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

2. Depreciation 2020:	6,075
2021:	8,100
2022:	8,100
2023:	<u>2,025</u> (8,100 × 3/12)
Accum. Deprec.	<u>24,300</u>

Book Value 52,900 – 24,300 = 28,600
 Cash Paid 62,000 – 30,210 = 31,790
 Book Value 28,600 plus cash paid 31,790 = 60,390

$$3. \text{Rate} = 2/4 = .50 \text{ or } 50\% \\ 50\% \times 60,390 \times 9/12 = \underline{22,646} \text{ (deprec. for 2023)}$$

$$4. 50\% \times (60,390 - 22,646) \times 9/12 = \begin{array}{r} 14,154 \text{ (deprec. for 2024)} \\ + 22,646 \text{ (deprec. for 2023)} \\ \hline \underline{36,800} \text{ (accum. deprec.)} \end{array}$$

$$5. (537,000 - 35,000)/200,000 = 2.51/\text{unit} \\ 2024: 31,000 \text{ units} \times 2.51/\text{unit} = \underline{77,810}$$

$$6. \text{Depreciation for Jan. 1/2025 to August 21/2027} \\ = 108,000 \text{ units} \times 2.51/\text{unit} = 271,080 \\ \quad \quad \quad + \underline{77,810} \text{ (2024)} \\ \quad \quad \quad \underline{348,890} \text{ (accum. deprec.)}$$

Problem 9-19A (10 minutes)

(a)

2020			
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 9-20A (30 minutes)**Part 1****2020**

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

Part 2**2023**

Oct. 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 9-21A (30 minutes)*Part 1****a.****2020**

Jun. 27	Depreciation Expense, Boat – Motor	2,660	
	Accumulated Depreciation, Boat – Motor ..		2,660
	<i>To update depreciation in 2020 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 2020 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 2012; $5,320 \times 7 \text{ years}$ for 2013 thru 2019 = 37,240; $5,320/\text{year} \times 6/12 = 2,660$ deprec. from Jan. 1/20 to June 27/20; $37,240 + 3,990 + 2,660 = 43,890$ accumulated depreciation at June 27, 2020;

2. Body: Accumulated depreciation at Dec. 31, 2019:
 $23,800 - 7,000 = 16,800$; $16,800 \div 15 \text{ years} = 1,120/\text{year}$; $1,120 \times 9/12 = 840$ depreciation for 2012; $1,120 \times 7 \text{ years}$ (2013 thru 2019) = 7,840; $7,840 + 840 = 8,680$
 Revised depreciation at Dec. 31, 2020 (rounded):
 $23,800 - 8,680 - 7,000 = 8,120$ remaining depreciable cost;
 $8,120 \div 12.25^1 \text{ years} =$ \$ 663*

¹ $20 - 7 \frac{9}{12} = 12 \frac{3}{12}$ 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 2020 depreciation = \$2,660 + \$3,113 = \$5,773

ALTERNATE PROBLEMS**Problem 9-1B (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 9-2B (25 minutes)

Xentel Interactive Balance Sheet September 30				
	2020		2019	
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>	32,400
Building	\$225,000		\$225,000	
Less: Accumulated depreciation	<u>54,000</u>	<u>171,000</u>	<u>50,400</u>	<u>174,600</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>	<u>6,660</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
Non-current liabilities:				
Notes payable, due in 2025		<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 2019. In 2020, 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 9-3B (25 minutes)

Year	(a) Straight-line	(b) Double-declining-balance (Rate = $2/4 = .50$ or 50%)	(c) Units-of-production (Rate = $[(169,200 - 24,000)/181,500] = .80/\text{unit}$)
2018	36,300 ¹	$50\% \times 169,200 = 84,600$	30,640 ($.80 \times 38,300$)
2019	36,300	$50\% \times (169,200 - 84,600) = 42,300$	32,920 ($.80 \times 41,150$)
2020	36,300	\$18,300 ²	42,080 ($.80 \times 52,600$)
2021	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 2020 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 2021 is \$39,560 calculated as \$145,200 – \$105,640 accumulated depreciation recorded to date.

Problem 9-4B (30 minutes)**Part 1. Purchase made on January 1, 2020****A. Double-declining balance method**

	2020	2021	2022
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 year¹	\$58,800	\$105,840	\$84,672

B. 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 year²	\$26,600	\$53,200	\$53,200

1. Rate = $2/10 = .20$ or 20%

2020: $20\% \times 588,000 \times 6/12 = 58,800$ note – using half year rule

2021: $20\% \times (588,000 - 58,800) = 105,840$

2022: $20\% \times (588,000 - 58,800 - 105,840) = 84,672$

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

Problem 9-4B (continued)**Part 2. Purchase made on April 1, 2020****A. Double-declining balance method**

	2020	2021	2022
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 year¹	\$58,800	\$105,840	\$84,672

B. 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 year²	\$26,600	\$53,200	\$53,200

3. Rate = $2/10 = .20$ or 20%

2020: $20\% \times 588,000 \times 6/12 = 58,800$ (note – using half year rule)

2021: $20\% \times (588,000 - 58,800) = 105,840$

2022: $20\% \times (588,000 - 58,800 - 105,840) = 84,672$

4. $(588,000 - 56,000)/10 = 53,200 \times 6/12 = 26,600$

Problem 9-5B (30 minutes)

Year	Depreciation Method:		
	Straight-line	Double-declining balance	Units-of-production
2020	$(145,000 - 25,000)/5 = 24,000/\text{year} \times 2/12 = 4,000$	Rate = $2/5 = .40$ or 40% $145,000 \times 40\% \times 2/12 = 9,667$	Rate = $(145,000 - 25,000)/100,000 = 1.20/\text{km}$ $1.20 \times 5,800 = 6,960$
2021	24,000	$(145,000 - 9,667) \times 40\% = 54,133$	$1.20 \times 19,400 = 23,280$
2022	24,000	$(145,000 - 9,667 - 54,133) \times 40\% = 32,480$	$1.20 \times 22,850 = 27,420$
2023	24,000	$(145,000 - 9,667 - 54,133 - 32,480) \times 40\% = 19,488$	$1.20 \times 25,700 = 30,840$
2024	24,000	4,232*	$1.20 \times 19,980 = 23,976$
2025	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 9-6B (30 minutes)

Year	Depreciation Method:		
	Straight-line	Double-declining balance	Units-of-production
2020	$(145,000 - 25,000)/5 = 24,000/\text{year} \times 6/12 = 12,000$	Rate = $2/5 = .40$ or 40% $145,000 \times 40\% \times 6/12 = 29,000$	Same as Problem 9-4B; Units-of-production is usage based and not affected by time 6,960
2021	24,000	$(145,000 - 29,000) \times 40\% = 46,400$	$1.20 \times 19,400 = 23,280$
2022	24,000	$(145,000 - 29,000 - 46,400) \times 40\% = 27,840$	$1.20 \times 22,850 = 27,420$
2023	24,000	$(145,000 - 29,000 - 46,400 - 27,840) \times 40\% = 16,704$	$1.20 \times 25,700 = 30,840$
2024	24,000	56*	$1.20 \times 19,980 = 23,976$
2025	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 9-7B (15 minutes)**Part 1.****2021**

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, 2021

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 9-8B (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>

2020

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

*To record asset purchases.***Part 2** 2020 straight-line depreciation on building:

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

Part 3 2020 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 9-9B (45 minutes)

<u>Year</u>	<u>Straight-Line^a</u>	<u>Units-of-Production^b</u>	<u>Double-Declining-Balance^c</u>
2020	\$ 31,304	\$32,928	\$ 72,800
2021	46,956	51,744	80,080
2022	46,956	47,040	48,048
2023	46,956	44,688	28,829
2024	46,956	37,240	5,023*
2025	15,652	21,140	0
Totals	<u>\$234,780</u>	<u>\$234,780</u>	<u>\$234,780</u>

^aStraight-line:

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

$$= \$31,304 \text{ for 2020}$$

$$= \$46,956/\text{year} \times 4/12 = \$15,652 \text{ for 2022}$$

^bUnits-of-production:

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

(rounded)

<u>Year</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Depreciation</u>
2020	23,520	\$1.40	\$32,928
2021	36,960	1.40	51,744
2022	33,600	1.40	47,040
2023	31,920	1.40	44,688
2024	26,600	1.40	37,240
2025	30,940	1.40	21,140*
Total			<u>\$234,780</u>

*Take only enough depreciation in Year 2025 to reach the maximum accumulated depreciation of \$234,780.

^cDouble-declining-balance:

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

$$2020: 40\% \times 273,000 \times 8/12 = 72,800$$

$$2021: 40\% \times (273,000 - 72,800) = 80,080$$

$$2022: 40\% \times (273,000 - 72,800 - 80,080) = 48,048$$

$$2023: 40\% \times (273,000 - 72,800 - 80,080 - 48,048) = 28,829$$

$$2024: 234,780 - 229,757^* = 5,023$$

*Take only enough depreciation in Year 2024 to reach the maximum accumulated depreciation of \$234,780.

Problem 9-10B (40 minutes)

Cost Information						Depreciation		
Description	Date of Purchase	Depreciation Method	Cost ¹	Residual	Life	Balance of Accum. Deprec. Apr. 30, 2020	Depreciation Expense for 2021	Balance of Accum. Deprec. Apr. 30, 2021
Equipment	Oct. 3/17	Straight-line	\$ 62,400	\$ 16,800	20 yr.	\$ 5,890 ¹	\$ 2,280 ²	\$ 8,170 ³
Machinery	Oct. 28/17	Units-of-production	540,000	180,000	100,000 units	73,332 ⁴	38,124 ⁵	111,456 ⁶
Tools	Nov. 3/17	Double-declining balance	64,000	15,000	5 yr.	45,568 ⁷	3,432 ⁸	49,000 ⁹

- $(62,400 - 16,800)/20 = 2,280/\text{year} \times 2 \frac{7}{12} = \underline{5,890}$
- $(62,400 - 16,800)/20 = \underline{2,280/\text{year}}$
- $5,890 + 2,280 = \underline{8,170}$
- Rate = $(540,000 - 180,000)/100,000 = 3.60/\text{unit}$;
 2018: $940 \times 3.60 = 3,384$
 2019: $10,150 \times 3.60 = 36,540$
 2020: $9,280 \times 3.60 = \underline{33,408}$
 $\underline{73,332}$
- $10,590 \times 3.60 = \underline{38,124}$
- $73,332 + 38,124 = \underline{111,456}$
- Rate = $2/5 = .40$ or 40%
 2018: $40\% \times 64,000 \times 6/12 = 12,800$
 2019: $40\% \times (64,000 - 12,800) = 20,480$
 2020: $40\% \times (64,000 - 12,800 - 20,480) = \underline{12,288}$
 Accumulated depreciation at Apr. 30, 2020 = $\underline{\$45,568}$
- 2021: $(64,000 - 15,000) - 45,568 = \underline{3,432}$
- $45,568 + 3,432 = \underline{49,000}$

Problem 9-11B (20 minutes)**2020**

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, Truck¹	7,200	
	Accumulated Depreciation, Truck		7,200
	<i>To record depreciation to nearest whole month.</i>		

2021

Jan. 5	No entry.		
Mar. 15	Repair and Maintenance Expense	660	
	Cash		660
	<i>To record repairs.</i>		
Dec. 31	Depreciation Expense, Truck²	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 9-12B (40 minutes)

2021

Dec. 31	Depreciation Expense, Building ¹	1,620	
	Accumulated Depreciation, Building		1,620
	<i>To record annual depreciation.</i>		
31	Depreciation Expense, Equipment ²	7,320	
	Accumulated Depreciation, Equipment		7,320
	<i>To record annual depreciation.</i>		

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

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

Problem 9-13B (40 minutes)**2020**

Jan. 3 Warehouse – Furnace (new).....	39,000	
Accumulated Depreciation, Warehouse – Furnace	18,153 ¹	
Loss on Disposal	8,847	
Warehouse – Furnace (old).....		27,000
Accounts Payable		39,000

*To record installation of new warehouse furnace.***Calculations:**

- 2015 Deprec.: $27,000 \times 2/10 = 5,400$;
 2016 Deprec.: $(27,000 - 5,400) \times 2/10 = 4,320$;
 2017 Deprec.: $(27,000 - 9,720) \times 2/10 = 3,456$;
 2018 Deprec.: $(27,000 - 13,176) \times 2/10 = 2,765$;
 2019 Deprec.: $(27,000 - 15,941) \times 2/10 = 2,212$;
 Accum. Deprec. Dec. 31, 2019 = $5,400 + 4,320 + 3,456 + 2,765 + 2,212 = 18,153$.

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 reached ¹	-0-
Total depreciation expense to be recorded on the warehouse for 2020=		<u>\$28,185</u>

- 2015: $61,500 \times 2/5 = 24,600$;
 2016: $(61,500 - 24,600) \times 2/5 = 14,760$;
 2017: $(61,500 - 39,360) \times 2/5 = 8,856$;
 2018: $(61,500 - 48,216) \times 2/5 = 5,314$;
 2019: $(61,500 - 53,530) \times 2/5 = 3,188$ which exceeds max. allowable accumulated depreciation of 54,000 therefore the maximum that can be recorded in 2019 is $54,000 - 53,530 = 470$ with no depreciation recorded in any subsequent years.

Problem 9-14B (40 minutes)**Part 1****2020**

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 9-14B (concluded)**Part 2**

La Mancha Enterprises
Balance Sheet
March 31, 2020

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	<u>\$46,500</u> ²		
Less: Accumulated depreciation	<u>40,250</u>	<u>6,250</u>	
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	

Non-current liabilities:

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

Equity

Joy La Mancha, capital			<u>338,875</u> ³
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 9-15B (45 minutes)**Part 1****2020**

Mar.	2	Depreciation Expense, Van	1,575	
		Accumulated Depreciation, Van¹.....		1,575
		To record depreciation on van for 2020.		
	2	Cash	17,920	
		Accumulated Depreciation, Van¹.....	42,175	
		Loss on Disposal	4,305	
		Van		64,400
		To record sale of van.		

Part 2

Aug.	27	Depreciation Expense, Machinery	12,642	
		Accumulated Depreciation, Machinery².....		12,642
		To record depreciation on machinery for 2020.		
	27	Cash	95,718	
		Accumulated Depreciation, Machinery².....	33,082	
		Machinery		128,800
		To record sale of machinery.		

Part 3

June 29		Depreciation Expense, Equipment.....	3,500	
		Accumulated Depreciation, Equipment³.....		3,500
		To record depreciation on equipment for 2020.		
	29	Cash	27,720	
		Accumulated Depreciation, Equipment³.....	48,300	
		Gain on Disposal		420
		Equipment.....		75,600
		To record sale of equipment.		

Calculations:**1. Depreciation from Feb. 1/20 to Mar. 2/20:**

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

$$+ 40,600$$

$$\underline{\underline{42,175}}$$

(calculations continued on next page)

Problem 9-15B (concluded)**2. Depreciation from Feb. 1/20 to Aug. 27/20:**

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

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

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

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

3. Depreciation from Feb. 1/20 to June 29/20:

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

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

Problem 9-16B (60 minutes)**Part 1****2020**

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

2025

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 9-16B (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 2020, 2021, 2022, 2023, 2024	Deprec. for 2025	
Depreciation				
1. Accumulated depreciation =	$(20,604 \times 5 \text{ years}) + 5,151 =$			<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 9-17B (20 minutes)**2020**

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 upgrade, betterment.</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 9-18B (45 minutes)**1. Depreciation expense on first December 31 of each machine's life****2020**

Dec. 31	Depreciation Expense, Machine 6690¹.....	10,800	
	Accumulated Depreciation, Machine 6690.....		10,800
	<i>To record depreciation.</i>		

2022

Dec. 31	Depreciation Expense, Machine 6691³.....	8,325	
	Accumulated Depreciation, Machine 6691.....		8,325
	<i>To record depreciation.</i>		

2025

Dec. 31	Depreciation Expense, Machine 6711⁵.....	7,155	
	Accumulated Depreciation, Machine 6711		7,155
	<i>To record depreciation.</i>		

2. Purchase/exchange/disposal of each machine**2020**

May 1	Machine 6690.....	72,900	
	Cash.....		72,900
	<i>To record purchase of Machine 6690.</i>		

2022

Aug. 5	Machine 6691 (= to assets given up).....	49,950	
	Accumulated Depreciation, Machine 6690².....	36,450	
	Machine 6690		72,900
	Cash.....		13,500
	<i>To record exchange of Machine 6690.</i>		

2025

Feb. 1	Cash	13,500	
	Accumulated Depreciation, Machine 6691⁴.....	35,465	
	Loss on Disposal	985	
	Machine 6691		49,950
	<i>To record sale of Machine 6691.</i>		
1	Machine 6711.....	79,650	
	Cash.....		79,650
	<i>To record purchase of Machine 6711.</i>		

2026

Oct. 3	Cash	54,000	
	Accumulated Depreciation, Machine 6711⁶.....	17,888	
	Loss on Disposal	7,762	
	Machine 6711		79,650
	<i>To record sale of Machine 6711.</i>		

Problem 9-18B (continued)

Calculations:

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

2.	Depreciation	2020:	10,800	
		2021:	16,200	
		2022:	<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.	2022:	8,325
	2023: $40\% \times (49,950 - 8,325) =$	16,650
	2024: $40\% \times (49,950 - 8,325 - 16,650) =$	9,990
	2025: $40\% \times (49,950 - 8,325 - 16,650 - 9,990) \times 1/12 =$	<u>500</u>
		<u>35,465</u>

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

2025: $7,500 \text{ units} \times 0.954/\text{unit} = \underline{7,155}$

6.	Depreciation for Jan. 1/2026 to Oct. 3/2026:	
	$= 11,250 \text{ units} \times 0.954/\text{unit} =$	10,733
		<u>7,155</u>
	Accum. Deprec.	<u>17,888</u>

Problem 9-19B (20 minutes)**Part 1****a.****2020**

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

Secure Software Group
Partial Balance Sheet
December 31, 2020

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 9-20B (30 minutes)**Part 1****2020**

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**2024**

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. deprec.</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. deprec.</i>		

Problem 9-21B (40 minutes)*1.a. 2020**

Oct. 3 Depreciation Expense, Equipment – Fan 4,320
 Accum. Deprec., Equipment – Fan..... 4,320
 To update depreciation on replaced fan from Jan 1/20 to Oct 3/20.

3 Cash 8,400
 Accum. Deprec., Equipment – Fan..... 29,280¹
 Equipment – Fan (old)..... 32,400
 Gain on Disposal 5,280
 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 - Fan 22,370²
 Accum. Deprec., Equipment - Fan..... 22,370
 To record depreciation for 2020 on the equipment (sum of all components).

Calculations:

1. $32,400 - 3,600 = 28,800$; $28,800 \div 5 \text{ yrs} = 5,760/\text{yr}$;
 $5,760 \times 4/12 = 1,920$ deprec. for 2015;
 $5,760/\text{yr} \times 4 \text{ yrs (2016 to 2019 inclusive)} = 23,040$;
 $5,760/\text{yr} \times 9/12$ (max depreciation to depreciate 5 years) = 4,320 deprec. from Jan. 1/20 to Oct. 3/20;
 $1,920 + 23,040 + 4,320 = 29,280$ accum. deprec. at Oct. 3/20.

***Problem 9-21B (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 2015 ; $5,400/\text{yr} \times 4 \text{ yrs (2016 to 2019 inclusive)} = 21,600$; $1,800 + 21,600 = 23,400$ accum. deprec. at Dec. 31/19; 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	2015: $96,000 \times 2/10 \times 4/12 = 6,400$ 2016: $96,000 - 6,400 = 89,600 \times 2/10 = 17,920$ 2017: $89,600 - 17,920 = 71,680 \times 2/10 = 14,336$ 2018: $71,680 - 14,336 = 57,344 \times 2/10 = 11,469$ 2019: $57,344 - 11,469 = 45,875 \times 2/10 = 9,175$ 2020: $45,875 - 9,175 = 36,700 \times 2/10 =$	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	2015: $27,600 \times 2/5 \times 4/12 = 3,680$ 2016: $27,600 - 3,680 = 23,920 \times 2/5 = 9,568$ 2017: $23,920 - 9,568 = 14,352 \times 2/5 = 5,741$ 2018: $14,352 - 5,741 = 8,611 \times 2/5 = 3,444$ 2019: $8,611 - 3,444 = 5,167 \times 2/5 = 2,067$ which exceeds max.; maximum that can be taken in 2019 is $5,167 - 4,800 =$ 367 ; therefore, no depreciation is taken in 2020	-0-
		<u>\$22,370</u>

Part 2

Total 2020 depreciation = \$4,320 + \$22,370 = \$26,690

ANALYTICAL AND REVIEW PROBLEMS

A&R Problem 9-1

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 9-1

a.

Cost Information						Depreciation/Amortization		
Description	Date of Purchase	Deprec. Method	Original Cost	Residual	Life	Accum. Balance Dec. 31, 2019	Expense for 2020	Accum. Balance
Land	July 3/17		\$280,000			n/a	n/a	n/a
Building	July 3/17	S/L	454,000	\$40,000	15 yr.	\$ 69,000 ¹	\$46,000 ²	\$115,000
Machinery	Mar 20/17	Units	150,000	30,000	250,000	72,960 ³	31,200 ⁴	104,160
Truck	Mar 01/17	S/L	298,800	30,000	7 yr.	108,800 ⁵	38,400 ⁶	147,200
Furniture	Feb 18/17	DDB	24,000	3,000	5 yr.	18,240 ⁷	576 ⁸	-0- ¹⁰
Patent	Nov 7/18	S/L	103,800	-0-	5 yr.	24,220 ⁹	20,760 ⁹	44,980
Office Equip.	Apr 10/20	DDB	65,143 ¹¹	10,000	4 yr.	-0-	24,429 ¹²	24,429
Furniture	Apr 10/20	DDB	48,857 ¹¹	4,000	5 yr.	-0-	14,657 ¹³	14,657

Calculations:

- $(454,000 - 40,000)/15 = 27,600/\text{year} \times 6/12 =$

13,800 for 2017
27,600 for 2018
27,600 for 2019
69,000 Accum. deprec. at Dec. 31/19
- $(454,000 - 40,000 - 69,000)/(10 - 2.5 = 7.5) = \underline{46,000}$ for 2020
- $(150,000 - 30,000)/250,000 = \$0.48/\text{unit}$

$\times 45,000 =$ 21,600 for 2017
 $\times 55,000 =$ 26,400 for 2018
 $\times 52,000 =$ 24,960 for 2019
72,960 Accum. deprec. at Dec. 31/19
- $\$0.48/\text{unit} \times 65,000 = \underline{31,200}$ for 2020
- $(298,800 - 30,000)/7 = 38,400/\text{year} \times 10/12 = 32,000$ for 2017

38,400 for 2018
38,400 for 2019
108,800 Accum. deprec. Dec. 31/19
- $(298,800 - 30,000)/7 = 38,400/\text{year}$ depreciation for 2020

FFS 9-1 (continued)

7. $24,000 \times 2/5 \times 10/12 = 8,000$ for 2017
 $(24,000 - 8,000) \times 2/5 = 6,400$ for 2018
 $24,000 - (8,000 + 6,400) \times 2/5 = \underline{3,840}$ for 2019
18,240 Accum. deprec. Dec. 31/19
8. $[24,000 - (8,000 + 6,400 + 3,840)] \times 2/5 \times 3/12 = \underline{576}$ for 2020
9. $(103,800 - 0)/5 = 20,760/\text{year} \times 2/12 = 3,460$ for 2018
20,760 for 2019
24,220 Total dep. taken to Dec. 31/19
10. This has a -0- balance at December 31, 2020 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. $65,143 \times 2/4 \times 9/12 = \underline{24,429}$ for 2020
13. $48,857 \times 2/5 \times 9/12 = \underline{14,657}$ for 2020

FFS 9-1 (continued)**b.**

Times TeleCom		
Income Statement		
For Year Ended December 31, 2020		
Revenues:		
Revenue 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>
Profit		<u>\$444,794</u>

Times TeleCom	
Statement of Changes in Equity	
For Year Ended December 31, 2020	
Susan Times, capital, January 1, 2020	\$421,180
Add: Profit	<u>444,794</u>
Total.....	<u>865,974</u>
Less: Withdrawals by owner	<u>204,000</u>
Susan Times, capital, December 31, 2020.....	<u>\$661,974</u>

FFS 9-1 (*continued*)

1.

**Times TeleCom
Balance Sheet
December 31, 2020**

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

Non-current liabilities:

Notes payable, due 2023.....	<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 9-2

Part 1

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

- a.
- The \$32,978 (thousand) represents the book value of the PPE. The December 31, 2017, book value is the \$153,051 (thousand) total cost of the PPE assets less the \$120,073 (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 Spin Masters Note 11 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 \$32,978 (thousand) book value is reported in Note 2(l) (depreciation methods) and Note 11 (cost, accumulated depreciation, and book value).
- c. The depreciation expense for the year ended December 31, 2017, was \$44,908 (thousand). Although depreciation expense typically appears on the income statement, Spin Master does not detail it there but these amounts do appear on the statement of cash flows and in Notes 7, 11 and 12.

Part 2

- a. WestJet's property and equipment at December 31, 2017 is 70.27% of total assets calculated as $(\$4,567,504 / \$6,499,840) \times 100$.
- b. Indigo's property, plant and equipment at March 31, 2018 represent 12.99% of total assets calculated as $(\$82,314,000 / \$633,574,000) \times 100$.
- c. WestJet and Indigo operate in different industries: WestJet is an airline while Indigo operates bookstores. As such, WestJet has relatively little inventory in comparison to Indigo. WestJet's inventory at December 31 2017 is \$43,045 thousand or .66% of total assets (calculated as $\$43,045 / \$6,499,840 \times 100$). Indigo's inventory at March 31, 2018 is \$264,586 thousand or 41.76% of total assets (calculated as $\$264,586,000 / \$633,574,000 \times 100$). Indigo's inventory represents close to half of its total assets while WestJet's property and equipment represent over half of its assets. Indigo needs a large stock of inventory 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 MINI-CASE

CT 9-1

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 truck expenditures were recorded to the capital asset account.

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 9-1 (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 2018 of \$7,800 ($36,000/24 \text{ months} = 1,500/\text{month}$ insurance used $\times 10 \text{ months} = 15,000$ for 2018 vs. $36,000/5 \text{ yrs useful life} = 7,200$; $15,000 - 7,200 = 7,800$). 2018 net income is not known but if it is assumed that it approximates 2019 net income as reported (\$78,000), then the \$7,800 overstatement of net income in 2018 is material in nature since it approximates 10%.

—The net income in 2019 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 2020 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 an addition to Truck asset account, or as Prepaid Insurance; this would have affected the impact of the misstatement in 2020.

—It is unclear from the information provided whether revised depreciation was calculated when the 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 (A betterment 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 2020. Therefore, net income in 2020 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 2019 and 2020.

—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 2018 and 2019 and potentially in 2020.

—It appears that the 2019 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 repairs and maintenance expenses and betterments so that they can deal appropriately with the manager responsible and negative repercussions with shareholders/owners.

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