

SOLUTIONS

Learning Goal 28

Multiple Choice

1. b
2. a
3. c
4. b However, the double-declining-balance method calculates the depreciation expense on the full asset cost until the final year of use.
5. d Total appraised value is \$800,000. Equipment is 10%, building is 81.25%, and truck is 8.75%. These percentages are then multiplied by the cost of \$600,000.
6. a $\$82,000 + \$5,330 + \$900 + \$2,700 + \$2,000 = \$92,930$
7. d
8. a
9. d
10. d There is an economic gain of \$500 [$\$18,000 - (\$15,000 \text{ cash plus } \$2,500 \text{ book value given up})$], but this gain cannot be recorded. The new asset is recorded at the cost of the resources given up: cash of \$15,000 plus book value of \$2,500.
11. a $\$5,000,000 / 100,000 \text{ tons} = \50 per ton cost.
12. c Unearned revenue is a liability.
13. b *Note:* Intangible assets are amortized, not depreciated.
14. c
15. d
16. a

Discussion Questions and Brief Exercises

1. For long-term asset acquisitions, all expenditures normally required to acquire an asset and put it into initial normal operating condition are capitalized and become part of the cost of the asset.
2. A business does not have to do anything. It just keeps using the asset! What this means in terms of the matching principle is that the asset was depreciated too quickly. The estimate of the useful life was too low, so too much depreciation expense was charged each year of the asset's estimated useful life. The matching should have been spread over a longer period.
3. (1) Retire (discard) an asset. (2) Sell an asset. (3) Exchange an asset. Gain or loss is always calculated as the difference between the value of what is received and the value (on the books) of what is given up. In exchange transactions that do not have commercial substance, gain is not recorded.
4. A normal repair maintains an asset in its normal operating condition. An extraordinary repair materially improves the function or extends the life of a plant asset. An expenditure for a normal repair is recorded as an operating expense in the period the repair is made. An expenditure for an extraordinary repair is debited to the accumulated depreciation account for the related asset, thereby increasing its book value.

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5. At the time of the expenditure, the accumulated depreciation was $(\$50,000/8) \times 4 = \$25,000$. The expenditure reduces the accumulated depreciation to \$10,000 and increases the total useful life to 12 years. Therefore, the new depreciation expense is $\$10,000/(12 - 4) = \$1,250$ per year.

	Account/Explanation	Post. Ref.	Dr.	Cr.
	Accumulated Depreciation—Computer		15,000	
	Cash			15,000
	Depreciation Expense—Computer		1,250	
	Accumulated Depreciation—Computer			1,250

6. Depreciation is the allocation of the cost of a plant and equipment asset to expense over the estimated useful life of the asset. Depreciation is an application of the matching principle.
7. Straight-line depreciation allocates an equal amount of asset cost to depreciation expense each time period of an asset's useful life. Double-declining balance is an accelerated method that allocates more cost into expense each time period early in an asset's life and less expense later in an asset's life. Units of production depreciation allocates cost into expense only as an asset is used, so obsolescence and the passing of time is not a significant issue.

As a manager I might be less interested in the best theoretical matching and more interested in the effects on the financial statements. Straight-line will have the same effect on net income each year. Double-declining depreciation will result in less net income in early years and more net income in later years because the depreciation expense is more in the early years. However, this method will result in greater tax savings (more deductible expense) in early years and less in later years. If obsolescence were not a factor and the asset would not be used at the same rate each period, units of production would be a good choice. However, the effect on the financial statements would depend on how much the asset was used.

8.

	Account/Explanation	Post. Ref.	Dr.	Cr.
	Accumulated Depreciation—Machinery		60,000	
	Loss on Retirement		40,000	
	Machinery			100,000

Accumulated depreciation: $(\$100,000 - \$10,000)/6 = \$15,000$ per year. $4 \times \$15,000 = \$60,000$.

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9.

Method	Year 1	Year 2	Total
Straight-line	$(80,000 - 5,000)/10 = 7,500$	$(80,000 - 5,000)/10 = 7,500$	15,000
Double-declining	$80,000 \times .2 = 16,000$	$(80,000 - 16,000) \times .2 = 12,800$	28,800

10.

\$1,000 trade-in value:

	Account/Explanation	Post. Ref.	Dr.	Cr.
	Loss on Exchange		2,000	
	Office Equipment (new)		65,000	
	Accumulated Depreciation—Office Equipment		32,000	
	Office Equipment (old)			35,000
	Cash			64,000

Value received

New equipment \$65,000

Value given up

Old equipment \$ 3,000

Cash 64,000 67,000Loss on exchange (\$ 2,000)

\$5,000 trade in value:

	Account/Explanation	Post. Ref.	Dr.	Cr.
	Office Equipment (new)		63,000	
	Accumulated Depreciation—Office Equipment		32,000	
	Office Equipment (old)			35,000
	Cash			60,000

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Value received		
New equipment		\$65,000
Value given up		
Old equipment	\$ 3,000	
Cash	<u>60,000</u>	<u>63,000</u>
Gain on exchange.....		<u>\$ 2,000</u>

Note: Gain cannot be recorded because the exchange does not have commercial substance. The cost of the new equipment is simply whatever was given up to acquire it—the book value of the old asset plus the cash.

11. (1) Calculate the total estimated cash flows from the asset. (2) If the value of the total cash flows is less than the asset's book value, the asset is impaired. (3) The value of the asset written off is the difference between its fair market value and book value. The journal entry debits an Impairment Loss account and credits the asset.

12.

	Account/Explanation	Post. Ref.	Dr.	Cr.
	Patent		2,000,000	
	Cash			2,000,000
	Amortization Expense		250,000	
	Patent			250,000

Use the shorter of legal life or estimated useful life for the amortization calculation.

13. No, this is not correct; however, it is a common misunderstanding. Accumulated depreciation (sometimes misleadingly called *reserve for depreciation*) is the cumulative amount of depreciation expense that has been recorded for a plant asset. Any cash reserve would appear as part of cash in the current asset section of the balance sheet.
14. For exchange transactions that have commercial substance, the cost of the new asset is the fair market value of the new asset or the fair market value of the old asset, whichever value is most reliable. (Usually it is the fair market value of the new asset.) For exchange transactions that do not have commercial substance, the following rule is applied: If there is an economic gain on the exchange, the gain is not recorded, and the book value of the old asset plus cash given become the cost of the new asset. If there is an economic loss, the loss should be recorded, and the fair market value of the new asset is recorded as the cost of the new asset.
15. Depreciation is the allocation of the cost of a plant and equipment asset into expense over its estimated useful life. Depletion is the allocation of the cost of a natural resource into expense as the resource is extracted and sold. Amortization is the allocation of the cost of an intangible asset into expense over the shorter of its legal life or estimated useful life.

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Reinforcement Problems

LG 28-1.

- a. $(\$47,500 + \$2,900 + \$50 + \$740 + \$300 + \$1,265 + \$2,375 = \$55,130$ equipment cost)
Fire insurance is not capitalized because the insurance will cover the period after installation.
- b. $(\$752,000 + \$3,200 + \$41,500 + \$5,100 + \$22,500 + \$8,000 = \$832,300$ building cost)
Furniture is a separate asset with a different useful life. Loan interest is an expense unless the building is being constructed, but this is a purchase. Security is an ongoing expense, not directly related to the purchase in this case.
- c. Cost can be calculated as book value plus accumulated depreciation: $\$92,300 + \$183,600 = \$275,900$.
- d.

Land	Land Improvements	Building	Current Expenses
\$ 12,500	\$18,000	\$810,200	Current property tax \$18,000
195,000	14,500	20,000	Fire damage loss \$25,000
5,850	15,000	40,500	<i>Note:</i> Uninsured losses are
2,950	16,750	1,500	not "normal" and are never
<u>\$216,300</u>	<u>15,000</u>	<u>\$872,200</u>	capitalized.
	<u>\$79,250</u>		

- e. Both cash and debt are part of the cost of property. $\$127,500 + \$38,000 = \$165,500$.
- f. Based on the appraised values, land is 35%, building is 45%, and equipment is 20%. Therefore, land cost is $.35 \times \$1,500,000 = \$525,000$; building cost is $.45 \times \$1,500,000 = \$675,000$; equipment cost is $.2 \times \$1,500,000 = \$300,000$.

LG 28-2. The original depreciation expense is $(\$275,000 - \$5,000)/8$ years = \$33,750 per year. At the end of the second year when the useful life is revised, the remaining life is now $6 - 2 = 4$ years. The asset's book value is $\$275,000 - \$67,500 = \$207,500$. This book value (less residual) is then depreciated over the new remaining useful life: $(\$207,500 - \$5,000)/4$ years = \$50,625 per year. (Year 3 and remaining years.)

Depreciation Expense		50,625	
Accumulated Depreciation—Computer			50,625

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LG 28-3.

Straight-line depreciation:

Period	Depreciation Expense	Accumulated Depreciation	Book Value
2007	\$4,000	\$4,000	\$17,000
2008	4,000	8,000	13,000
2009	4,000	12,000	9,000
2010	4,000	16,000	5,000
2011	4,000	20,000	1,000

Double-declining-balance depreciation:

Period	Depreciation Expense	Accumulated Depreciation	Book Value
2007	\$8,400	\$8,400	\$12,600
2008	5,040	13,440	7,560
2009	3,024	16,464	4,536
2010	1,814	18,278	2,722
2011	1,722	20,000	1,000

Comment: \$1,722 depreciation expense in the last year is calculated: \$2,722 – \$1,000.

Units-of-production depreciation:

Period	Depreciation Expense	Accumulated Depreciation	Book Value
2007	\$4,000	\$4,000	\$17,000
2008	7,000	11,000	10,000
2009	5,000	16,000	5,000
2010	3,000	19,000	2,000
2011	1,000	20,000	1,000

Comment: The depreciation expense per unit is \$20,000/10,000 hours = \$2 per hour.

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LG 28-4.

a.

	Depreciation Expense	Accumulated Depreciation	Book Value
			\$124,000
2004	\$12,000	\$ 12,000	112,000
2005	24,000	36,000	88,000
2006	24,000	60,000	64,000
2007	24,000	84,000	40,000
2008	24,000	108,000	16,000
2009	12,000	120,000	4,000

b.

Loss on Sale		2,000	
Cash		62,000	
Accumulated Depreciation—Truck		60,000	
Truck			124,000

c.

	Depreciation Expense	Accumulated Depreciation	Book Value
			\$124,000
2004	24,800	24,800	99,200
2005	39,680	64,480	59,520
2006	23,808	88,288	35,712
2007	14,285	102,573	21,427
2008	8,571	111,144	12,856
2009	8,856	120,000	4,000

Cash		62,000	
Accumulated Depreciation—Truck		88,288	
Truck			124,000
Gain on Sale			26,288

The accelerated depreciation method results in significantly greater depreciation expense the first two years of the asset's life and less in the last three years. For a sale in December 2006, the accelerated method resulted in a gain instead of loss as with straight-line. This is because the book value was lower with the accelerated method.

Calculation notes: (1) Because the asset was purchased on July 1, the first and last years' of the asset's useful life will have only a half-year of depreciation with straight-line. (2) With double-declining, the first year is a half year of expense and the final year of depreciation expense is $12,856 - 4,000 = 8,856$.

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LG 28-5.

The annual depreciation expense is \$15,000, and the accumulated depreciation through the end of year 6 is $\$15,000 \times 6 = \$90,000$. The table below shows the details.

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$130,000
1	\$15,000	\$15,000	\$115,000
2	\$15,000	\$30,000	\$100,000
3	\$15,000	\$45,000	\$85,000
4	\$15,000	\$60,000	\$70,000
5	\$15,000	\$75,000	\$55,000
6	\$15,000	\$90,000	\$40,000
Extraordinary Repair		\$78,000	\$52,000
7	(a) \$8,400	\$86,400	(b) \$43,600

End of year 6: Book value before repair: \$40,000

Add repair cost: 12,000

New book value: \$52,000

Year 7 depreciation expense: $(\$52,000 - \$10,000)/5 \text{ years} = \$8,400$ per year

End of year 7 book value: $\$130,000 - \$86,400 = \$43,600$

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
	Accumulated Depreciation		12,000	
	Cash			12,000
	Depreciation Expense—Truck		8,400	
	Accumulated Depreciation—Truck			8,400

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Learning Goal 28, continued

LG 28-6.

a. Straight-line depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$35,000
2007	$[(35,000 - 1,000)/5] \times \frac{9}{12} = 5,100$	\$ 5,100	29,900
2008	$(35,000 - 1,000)/5 = 6,800$	11,900	23,100
2009	$(35,000 - 1,000)/5 = 6,800$	18,700	16,300

Double-declining-balance depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$35,000
2007	$(35,000 \times .4) \times \frac{9}{12} = 10,500$	\$10,500	24,500
2008	$24,500 \times .4 = 9,800$	20,300	14,700
2009	$14,700 \times .4 = 5,880$	26,180	8,820

b. Straight-line depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$27,000
2006	$[(27,000 - 0)/10] \times \frac{4}{12} = 900$	\$900	26,100
2007	$(27,000 - 0)/10 = 2,700$	3,600	23,400
2008	$[(27,000 - 0)/10] \times \frac{1}{12} = 225$	3,825	23,175

Double-declining-balance depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$27,000
2006	$(27,000 \times .2) \times \frac{4}{12} = 1,800$	\$1,800	25,200
2007	$(25,200 \times .2) = 5,040$	6,840	20,160
2008	$(20,160 \times .2) \times \frac{1}{12} = 336$	7,176	19,824

SOLUTIONS

Learning Goal 28, continued

LG 28-6, continued

c. Straight-line depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$150,000
2007	$[(150,000 - 10,000)/8] \times \frac{6}{12} = 8,750$	\$8,750	141,250
2008	$(150,000 - 10,000)/8 = 17,500$	26,250	123,750
2009	$(150,000 - 10,000)/8 = 17,500$	43,750	106,250

Double-declining-balance depreciation:

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			\$150,000
2007	$(150,000 \times .25) \times \frac{6}{12} = 18,750$	\$18,750	131,250
2008	$(131,250 \times .25) = 32,813$	51,563	98,437
2009	$(98,437 \times .25) = 24,609$	76,172	73,828

Comment: Notice that in c in the double-declining depreciation, it was perfectly acceptable to round amounts to the next dollar. This is because depreciation calculations are based on estimates and do not involve any transactions with outside parties.

SOLUTIONS

Learning Goal 28, continued

LG 28-7.

a.

Straight-Line Depreciation			
Year	Depreciation Expense	Accumulated Depreciation	Book Value
Asset Cost			\$196,000
2007	\$38,000	\$ 38,000	158,000
2008	38,000	76,000	120,000
2009	38,000	114,000	82,000
2010	38,000	152,000	44,000
2011	38,000	190,000	6,000
Double-Declining-Balance Depreciation			
Asset Cost			\$196,000
2007	\$78,400	\$78,400	117,600
2008	47,040	125,440	70,560
2009	28,224	153,664	42,336
2010	16,934	170,598	25,402
2011	19,402	190,000	6,000
Units-of-Production Depreciation			
Asset Cost			\$196,000
2007	\$19,000	\$19,000	177,000
2008	47,500	66,500	129,500
2009	47,500	114,000	82,000
2010	38,000	152,000	44,000
2011	38,000	190,000	6,000

Straight-line: $(\$196,000 - \$6,000)/5 \text{ year} = \$38,000$ per year.

Double-declining balance: Rate is $\frac{1}{5} \times 2 = 40\%$. Final year expense: $\$25,402 - \$6,000 = \$19,402$.

Units-of-production: Rate is $(\$196,000 - \$6,000)/200,000 \text{ miles} = \0.95 per mile.

SOLUTIONS**Learning Goal 28, continued****LG 28-7, continued**

b.

For 2007	Straight-Line	Double-Declining Balance	Units-of-Production
Service revenue	\$585,000	\$585,000	\$585,000
Operating expenses except for depreciation	(415,000)	(415,000)	(415,000)
Depreciation expense	(38,000)	(78,400)	(19,000)
Operating income before tax	132,000	91,600	151,000

In the first year, the double-declining-balance method results in more than twice as much depreciation expense as straight-line (double the straight-line rate and cost is not reduced by residual value), resulting in lower income. Units-of-production depreciation depends on the miles used, and in the first year, the truck was not driven a great number of miles, so the depreciation expense is relatively low. This resulted in higher income.

c.

For 2007	Straight-Line	Double-Declining Balance	Units-of-Production
Operating income before tax	\$132,000	\$91,600	\$151,000
Income tax @ 40%	52,800	36,640	60,400

Double-declining results in greater cash flow because of a tax savings of \$16,160 greater than straight-line and \$23,760 greater than units-of-production. In early years, double-declining usually provides the greatest tax savings and best cash flow. However, this reverses in later years, when double-declining results in much less depreciation.

d. Over the entire 5-year life of the truck, all the methods result in the same total depreciation, and the same amount of tax savings if the tax rate is constant. The different methods result in different timing of the expenses.

SOLUTIONS

Learning Goal 28, continued

LG 28-8.

a.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
2007				
January 3	Office Furniture		10,000	
	Cash			7,000
	Accounts Payable			3,000
March 28	(New) Van		29,000	
	Loss on Exchange of Plant Assets		1,000	
	Accumulated Depreciation—Van		18,000	
	(Old) Van			21,000
	Cash			27,000
June 1	Depreciation Expense		216	
	Accumulated Depreciation			216
	Cash		2,100	
	Accumulated Depreciation—Office Equipment		11,216	
	Office Equipment			12,500
	Gain on Sale of Plant Assets			816
Sept. 1	Loss on Retirement of Plant Assets		400	
	Accumulated Depreciation—Computer Equipment		4,100	
	Computer Equipment			4,500
Oct. 1	(New) Air Conditioning Equipment		112,000	
	Accumulated Depreciation—Air Conditioning Equipment		83,000	
	(Old) Air Conditioning Equipment			85,000
	Cash			110,000
Nov. 30	Depreciation Expense		183	
	Accumulated Depreciation—Office Furniture			183
	Cash		3,500	
	Accumulated Depreciation—Office Furniture		183	
	Office Furniture			2,000
	Gain on Sale of Plant Assets			1,683
Dec. 31	(New) Video Equipment		29,500	
	Accumulated Depreciation—Video Equipment		9,000	
	(Old) Video Equipment			12,000
	Cash			26,500

SOLUTIONS**Learning Goal 28, continued****LG 28-8, continued**

b.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
	Adjusting Entries			
Dec. 31	Depreciation Expense—Office Furniture		800	
	Accumulated Depreciation—Office Furniture			800
	Depreciation Expense—Van		8,700	
	Accumulated Depreciation—Van			8,700
	Depreciation Expense—Air Conditioning Equipment		5,600	
	Accumulated Depreciation—Air Conditioning Equipment			5,600

c.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
2008	Adjusting Entries			
Dec. 31	Depreciation Expense—Office Furniture		800	
	Accumulated Depreciation—Office Furniture			800
	Depreciation Expense—Van		8,120	
	Accumulated Depreciation—Van			8,120
	Depreciation Expense—Air Conditioning Equipment		21,280	
	Accumulated Depreciation—Air Conditioning Equipment			21,280
	Depreciation Expense—Video Equipment		4,071	
	Accumulated Depreciation—Video Equipment			4,071

SOLUTIONS

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LG 28-8, *continued*

- c. The March 28 fair market value of the old asset probably is the amount of the trade-in allowance allowed: \$2,000. The October 1 fair market value of the old asset is the fair market value of the new equipment, which is given as \$137,000, less the cash of paid of \$110,000, which equals \$27,000. The December 31 fair market value of the old asset is the amount of the trade-in allowance allowed: \$5,000.

Calculations:

2007:

March 28:	Book value of old van: \$ 3,000	New van price: \$29,000
	Cash paid: <u>27,000</u>	
		Loss <u>\$ 1,000</u> (loss must be recognized)
June 1	Book value of copier:	Sales price: \$ 2,100
	current depreciation \$ 216	
	Prior accum. depreciation <u>11,000</u>	
	Accum. depreciation <u>\$11,216</u>	
	Book value: \$12,500 – \$11,216 =	Gain <u>\$ 816</u>
Oct. 1	Book value of old equip.: \$ 2,000	New equip. price: \$137,000
	Cash paid: <u>110,000</u>	
		Gain <u>\$ 25,000</u> (gain cannot be recognized)
Nov. 30	\$2,000 is 20% of the furniture, so depreciation expense must be calculated for 11 months on the 20% that is being sold, which reduces its book value.	Sales Price: \$3,500
	$(\$2,000/10) \times \frac{11}{12} = \183.33	
	Book value: \$2,000 – \$183 =	Gain on sale <u>\$1,683</u>

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Dec. 31	Book value of old equip. : \$ 3,000	New equip. price: \$31,500
	Cash paid: <u>26,500</u>	Gain <u>29,500</u>
		<u>\$ 2,000</u> (gain cannot be recognized)
Dec. 31	<i>2007 Depreciation adjusting entries:</i>	
	■ Furniture: $\$8,000/10 = \800	
	■ Van: $(\$29,000 \times .4) \times \frac{9}{12} = \$8,700$	
	■ Air-conditioning equipment: $(\$112,000 \times .2) \times \frac{3}{12} = \$5,600$	
Dec. 31	<i>2008 Depreciation adjusting entries:</i>	
	■ Furniture: $\$8,000/10 = \800	
	■ Van: $(\$29,000 - \$8,700) \times .4 = \$8,120$	
	■ Air-conditioning equipment: $(\$112,000 - \$5,600) \times .2 = \$21,280$	
	■ Video equipment: $(\$29,500 - \$1,000)/7 = \$4,071.43$	

LG 28-9.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
a.	Loss on Disposal		7,000	
	Accumulated Depreciation—Equipment		168,000	
	Equipment			175,000
b.	Cash		10,000	
	Accumulated Depreciation—Equipment		168,000	
	Equipment			175,000
	Gain on Sale			3,000
c.	Loss on Sale		2,000	
	Cash		5,000	
	Accumulated Depreciation—Equipment		168,000	
	Equipment			175,000
d.	(New) Equipment		210,000	
	Accumulated Depreciation—Equipment		168,000	
	Equipment			175,000
	Cash			203,000
e.	(New) Equipment		215,000	
	Loss on Exchange		1,000	
	Accumulated Depreciation—Equipment		168,000	
	Equipment			175,000
	Cash			209,000

SOLUTIONS

Learning Goal 28, continued

LG 28-10.

a.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
2008				
3/1	Depreciation Expense		1,500	
	Accumulated Depreciation—Equipment			1,500
	Cash		5,000	
	Notes Receivable		7,000	
	Accumulated Depreciation—Equipment		82,500	
	Equipment			90,000
	Gain on Sale of Plant Assets			4,500
6/2	Depreciation Expense		3,000	
	Accumulated Depreciation—Equipment			3,000
	Loss on Exchange of Plant Assets		2,000	
	Equipment (new)		30,000	
	Accumulated Depreciation—Equipment		50,000	
	Equipment (old)			72,000
	Cash			10,000
7/31	Equipment		54,000	
	Cash			54,000
9/29	Land (new)		30,000	
	Land (old)			30,000
11/1	Depreciation Expense		3,500	
	Accumulated Depreciation—Equipment			3,500
	Loss on Retirement of Plant Assets		7,000	
	Accumulated Depreciation—Equipment		35,000	
	Equipment			42,000

SOLUTIONS

Learning Goal 28, continued

LG 28-10, continued

Calculations:

- March 1: Depreciation expense to update the accumulated depreciation to March 1 is the annual depreciation times $\frac{2}{12}$. This is $(\$90,000/10) \times \frac{2}{12} = \$1,500$. The accumulated depreciation is the accumulated depreciation as of December 31, 2007 plus the current depreciation. This is $(\$90,000 - \$9,000) + \$1,500 = \$82,500$. Gain on sale is sales price minus book value. This is $\$12,000 - \$7,500 = \$4,500$.
- June 2: Depreciation expense to update the accumulated depreciation to June 2 is the annual depreciation times $\frac{5}{12}$. This is $(\$72,000/10) \times \frac{5}{12} = \$3,000$. The accumulated depreciation is the accumulated depreciation as of December 31, 2007 plus the current depreciation. This is $\$47,000 + \$3,000 = \$50,000$. To determine gain or loss on the exchange compare the following: Fair market value of the asset received is \$30,000. The recorded value of the assets given up is \$10,000 cash plus book value of \$22,000 = \$32,000. The \$2,000 loss is recorded. The new asset is recorded at its fair market value in a transaction without commercial substance.
- September 29: This exchange also does not have commercial substance because the assets are so similar in use. Therefore, gain cannot be recorded on the transaction.
- November 1: The accumulated depreciation is the depreciation that should be recorded from the date the asset was acquired until the date that it was discarded. This is 6 months in 2000, 12 months per year from 2001 – 2007 and 10 months in 2008. This is $[(\$42,000/10) \times \frac{6}{12}] + [(\$42,000/10) \times 7] + [(\$42,000/10) \times \frac{10}{12}] = \$2,100 + \$29,400 + \$3,500 = \$35,000$. Because nothing was received for the asset, the loss is the amount of undepreciated book value of $\$42,000 - \$35,000 = \$7,000$.

b. December 31, 2008 depreciation adjusting entries:

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
2008				
	A			
12/31	Depreciation Expense—Equipment		62,050	
	Accumulated Depreciation—Equipment			62,050
	B			
	Depreciation Expense—Buildings		70,000	
	Accumulated Depreciation—Buildings			70,000

SOLUTIONS

Learning Goal 28, continued

LG 28-10, continued

- a. Depreciation for equipment acquired before 2008:
 $(\$780,000 - \$90,000 - \$72,000 - \$42,000)/10 = \$57,600$
- b. Depreciation for equipment acquired in the current year:
 $(\$30,000/10) \times \frac{7}{12} = \$1,750$
 $(\$54,000/10) \times \frac{5}{12} = \$2,250$
 $\$2,100,000/30 = \$70,000$

c.

Property, Plant, and Equipment		
Equipment	\$660,000	
Less: Accumulated depreciation	<u>214,100</u>	\$445,900
Buildings	2,100,000	
Less: Accumulated depreciation	<u>420,000</u>	1,680,000
Land		<u>595,000</u>
Total property, plant, and equipment		<u><u>\$2,720,900</u></u>

Equipment		Acc. Dep'n. Equipment		Buildings	Acc. Dep'n. Buildings		Land	
780,000	90,000	82,500	312,000	2,100,000	350,000	595,000	30,000	
30,000	72,000	50,000	1,500		70,000	30,000		
54,000	42,000	35,000	3,000		<u>420,000</u>	<u>595,000</u>		
<u>660,000</u>			3,500					
			<u>61,600</u>					
			<u>214,100</u>					

SOLUTIONS

Learning Goal 28, continued

LG 28-11.

Date	Account/Explanation	Post. Ref.	Dr.	Cr.
a.	Amortization Expense		50,000	
	Patent			50,000
	(\$750,000/15 = \$50,000 per year)			
b.	Amortization Expense		9,800	
	Patent			9,800
	(\$68,600/7 years remaining life = \$9,800 per year)			
c.	Oil Inventory		17,500	
	Cost of Goods Sold		122,500	
	Accumulated Depletion—Oil Land			140,000
	(\$1,500,000 + \$250,000)/500,000 = \$3.50 per barrel)			

LG 28-12.

- a. The new president of the board of directors is confused about the meaning of depreciation. For accounting and financial purposes, the word *depreciation* does NOT mean loss of value—this is the everyday, non-accounting meaning of the word. For accounting and financial purposes, depreciation is the process of allocating the cost of a long-term asset into expense over the asset's estimated useful life. This is an application of the matching principle. Depreciation does NOT mean putting money aside to replace an asset. If this were happening, there would be a separate and identifiable cash account existing for this purpose, and it would have nothing to do with depreciation. Sometimes companies use the phrase *reserve for depreciation* or *depreciation reserve*. This is very misleading.
- b. This situation illustrates the problem of how to determine the correct market value. The question gives no indication of the fair market value of either asset, so we really cannot record the exchange until we have better information. The GAAP rule is that, for transactions with commercial substance, the fair market value that is *most reliable* should control how the transaction is recorded. This can either be the fair market value of the new asset or the fair market value of the old asset. For example, in this question, if:
- We know the fair market value of the old asset is \$5,000, then we assume that the value of the new asset is equivalent to this, so there is a \$2,000 gain because the new asset exceeds book value of the old asset by \$2,000.
 - We know that the fair market value of the new asset is \$2,000 and is more reliable, then this is less than the book value of the old asset, so there is a \$1,000 loss.
 - We know fair market values are equal, there will be no gain or loss.

SOLUTIONS

Learning Goal 28, continued

LG 28-13.

Bemidji Minerals Enterprise			
Income Statement			
For the Year Ended January 31, 2008			
Mineral sales revenue			\$ 159,950
Less: Cost of minerals sold			<u>79,890</u>
Gross profit			80,060
Operating expenses			
Selling expenses			
Salaries & wages expense	8,235		
Freight-out expense	6,850		
Advertising expense	2,900		
Uncollectible accounts expense	<u>2,100</u>		
Total selling expenses		20,085	
Administrative expenses			
Salaries & wages	46,665		
Utilities expense	10,840		
Insurance expense	5,650		
Depreciation expense	14,800		
Amortization expense	5,400		
Supplies expense	<u>500</u>		
Total administrative expenses		<u>83,855</u>	
Total operating expenses			<u>103,940</u>
Operating loss			(23,880)
Other revenue and gains			
Interest revenue		1,100	
Other expense and losses			
Interest expense		15,125	
Loss on exchange		5,200	<u>(19,225)</u>
Net Loss			<u><u>\$(43,105)</u></u>

Comments: Because this company is in the business of selling gold and/or other minerals, the depletion expense represents the cost of the minerals sold. Adding to the cost of minerals sold is the rental expense for equipment used in the mining operation. Therefore, the total cost of minerals sold is $\$72,390 + \$7,500 = \$79,890$. Also notice that the loss on exchange is part of “other” items—it is not an operating expense.

SOLUTIONS

Learning Goal 28, continued

LG 28-13, *continued*

Bemidji Minerals Enterprise		
Balance Sheet		
December 31, 2008		
Assets		
Current assets		
Cash		\$60,425
Accounts and notes receivable	\$14,950	
Less: Allowance for uncollectible accounts	<u>3,600</u>	
Net realizable accounts and notes receivable		11,350
Short-term investments		28,000
Minerals inventory		11,900
Supplies		1,325
Prepaid insurance		<u>2,800</u>
Total current assets		\$115,800
Non-current notes receivable		9,250
Property, plant, and equipment		
Land improvements	35,750	
Building	244,200	
Office equipment	102,500	
Less: Accumulated depreciation	<u>(189,750)</u>	
		192,700
Gold mines land	185,700	
Less: Accumulated depletion	<u>(90,000)</u>	
		<u>95,700</u>
Total property, plant, and equipment		288,400
Intangible assets		
Patent, net of \$36,135 amortization		<u>17,865</u>
Total assets		<u><u>\$431,315</u></u>
Liabilities and Owner's Equity		
Current liabilities		
Wages payable		18,000
Accounts payable		18,770
Current portion of long-term note		<u>5,000</u>
Total current liabilities		\$ 41,770
Long-term liabilities		
Note payable		215,000
Lease liability		<u>21,800</u>
Total long-term liabilities		
Total liabilities		236,800
Owner's Equity		
R. MacDuffie, capital		<u>152,745</u>
Total liabilities and owner's equity		<u><u>\$431,315</u></u>

SOLUTIONS**Learning Goal 28, continued****LG 28-13, continued**

Comments: Notice that because the land is a depletable resource, it is shown separately from depreciable plant assets. Also, inventory follows short-term investments. From the length of this balance sheet, you can see the necessity of combining items such as current assets—this could not be much longer and still be manageable. However, the trade-off is that when items are combined, detailed information is lost.

b.

- Age of building: $\$125,550/\$5,050 = \text{aprox. } 25 \text{ years}$
- Average age of equipment: $\$31,050/\$5,900 = \text{aprox. } 5 \text{ years}$
- Age of patent: $\$36,135/\$5,400 = \text{aprox. } 7 \text{ years}$

Note: This method works best when straight-line depreciation is used because an equal amount of depreciation expense is recorded each year. Accelerated depreciation records more depreciation early in an asset's life; therefore, this calculation tends to show the assets as a little older than they really are because prior annual depreciation was greater than the current annual depreciation.
