

Chapter 7

Long-Term Assets

REVIEW QUESTIONS

Question 7-1 (LO 7-1)

Film and television costs; investments; parks, resorts and other property; intangible assets, goodwill, and other long-term assets.

Question 7-2 (LO 7-1)

The two major categories for long-term assets are (1) property, plant, and equipment and (2) intangible assets. Property, plant, and equipment include land, land improvements, buildings, equipment, and natural resources. Intangible assets include patents, trademarks, copyrights, franchises, and goodwill. The two categories differ by their physical substance. Property, plant, and equipment consist of items that you can actually see, while intangible assets lack physical substance. The existence of intangible assets is often based on a legal contract.

Question 7-3 (LO 7-1)

We initially record a long-term asset at its cost plus all expenditures necessary to get the asset ready for use. Thus, the initial cost of a long-term asset might be more than just its purchase price; it also will include any additional amounts the firm paid to bring the asset to its desired condition and location for use.

Question 7-4 (LO 7-1)

If University Hero initially records an expense incorrectly as an asset, expenses are understated or too small. Since expenses are subtracted from revenues in arriving at net income, understating expenses will overstate net income reported on the income statement. Similarly, recording an expense as an asset will overstate assets on the balance sheet. Retained earnings on the balance sheet will also be overstated due to the overstatement of net income.

Question 7-5 (LO 7-1)

Costs Little King might incur to make the land ready for its intended use include the purchase price plus closing costs such as fees for the attorney, real estate agent commissions, title, title search, and recording. Little King also includes the cost of removing the old building as an additional cost in making the land ready for its intended use. If any cash is received from selling salvaged materials from the old building, the cost of land is reduced by that amount. If the property is subject to back taxes or other obligations, these amounts are included as well. In fact, any additional expenditure such as clearing, filling, and draining the land, to prepare the land for its intended use, becomes part of the land's capitalized cost.

Answers to Review Questions (continued)

Question 7-6 (LO 7-1)

We don't depreciate land because its service life never ends. Land improvements are additional amounts spent to improve the land such as a parking lot, paving, temporary landscaping, lighting systems, fences, sprinkler systems, and similar additions. We record land improvements separately from land because, unlike land, these assets are subject to depreciation.

Question 7-7 (LO 7-1)

Costs we might incur to get equipment ready for use include sales tax, shipping, delivery, insurance, assembly, installation, testing, and even legal fees incurred to establish title.

Question 7-8 (LO 7-1)

We report natural resources on the balance sheet as part of property, plant, and equipment. Examples of natural resources include oil, natural gas, timber, and salt.

Question 7-9 (LO 7-2)

We value *purchased* intangible assets at their original cost plus all other costs, such as legal and filing fees, necessary to get the asset ready for use. Reporting intangible assets *developed internally* is quite different. Rather than recording these as an intangible asset on the balance sheet, we expense most of the costs for internally developed intangible assets to the income statement as we incur them.

Question 7-10 (LO 7-2)

A patent is an exclusive right to manufacture a product or to use a process. A copyright is an exclusive right of protection given to the creator of a published work, such as a song, film, painting, photograph, book, or computer software. A trademark is a word, slogan, or symbol that distinctively identifies a company, product, or service.

Question 7-11 (LO 7-2)

Goodwill is an intangible asset on the balance sheet that is recorded *only* when one company acquires another company. The acquiring company records goodwill equal to the purchase price less the fair value of the identifiable net assets acquired. The fair value of the identifiable net assets is the fair value of all identifiable assets acquired, minus the fair value of all liabilities assumed. We cannot sell goodwill separately. While most long-term assets can be separated from the company and individually sold, goodwill cannot.

Question 7-12 (LO 7-3)

We capitalize a particular cost as an asset if it increases future benefits, whereas we expense a cost if it benefits only the current period.

Answers to Review Questions (continued)

Question 7-13 (LO 7-3)

We expense repairs and maintenance expenditures which maintain a given level of benefits, in the period incurred. We capitalize as assets more extensive repairs that increase the future benefits, such as a new transmission or an engine overhaul of a delivery truck. An addition occurs when we add a new major component to an existing asset. An improvement is the cost of replacing a major component of an asset. We should capitalize the cost of additions and improvements because they increase the future benefits from the expenditure.

Question 7-14 (LO 7-3)

If a firm successfully defends an intangible right, it should capitalize the litigation costs and amortize them over the remaining service life of the related intangible. If the defense of an intangible right is unsuccessful, then the firm should expense the litigation costs as incurred because they provide no future benefit.

Question 7-15 (LO 7-4)

The dictionary definition of depreciation is a decrease in value of an asset, whereas the accounting definition of depreciation is an allocation of an asset's cost to an expense over time.

Question 7-16 (LO 7-4)

We must estimate the service life (also called useful life) of the asset as well as its residual value (also called salvage value) at the end of that life.

Question 7-17 (LO 7-4)

The service life tells how long the company expects to obtain benefits from the asset before disposing of it. Under the straight-line method we determine service life in units of time. Under the activity-based method we determine service life in units of activity. For example, the estimated service life of a delivery truck might be either five years or 100,000 miles.

Question 7-18 (LO 7-4)

Residual value, also referred to as salvage value, is the amount the company expects to receive from selling the asset at the end of its service life. The depreciable cost is the asset's cost minus its estimated residual value. In calculating depreciation under the straight-line method, we simply divide the depreciable cost by the number of years in the asset's life.

Question 7-19 (LO 7-4)

Straight-line creates an equal amount of depreciation each year. Double-declining-balance creates more depreciation in earlier years and less depreciation in later years. Activity-based depreciation varies depending on the use of the asset each year.

Answers to Review Questions (continued)

Question 7-20 (LO 7-4)

Little King Sandwiches uses straight-line depreciation that creates an equal amount of depreciation each year. In contrast, University Hero uses double-declining balance depreciation that takes more depreciation in earlier years and less depreciation in later years. By taking more depreciation in earlier years, University Hero will report lower income on the income statement and lower assets and retained earnings on the balance sheet in the early years and higher income on the income statement in later years. The use of different depreciation methods makes it more difficult to compare financial results across companies.

Question 7-21 (LO 7-4)

University Hero depreciates over a shorter service life (20 years) and therefore will take more depreciation expense per year compared to Little King for 20 years and then no depreciation for the next 20 years. By taking more depreciation expense per year in the first 20 years, University Hero will report lower income on the income statement and lower assets and retained earnings on the balance sheet. The opposite will happen in the next 20 years as Little King continues to depreciate the asset and University Hero does not. Even when both companies use the same depreciation method, comparisons can be hindered if the companies estimate different service lives.

Question 7-22 (LO 7-4)

Most companies use the straight-line method for financial reporting and the Internal Revenue Service's prescribed accelerated method (called MACRS) for income tax purposes. Companies choose straight-line for financial reporting for several reasons. Many probably believe they realize benefits from their plant assets approximately evenly over these assets' service lives. Another contributing factor is that straight-line is the easiest method to understand and apply. One more important motivation is the positive effect on reported income. Straight-line produces a higher net income than accelerated methods in the earlier years of an asset's life. Most companies choose MACRS for tax reporting to reduce taxable income. MACRS combines declining-balance methods in earlier years with straight-line in later years to allow for a more advantageous tax depreciation deduction.

Question 7-23 (LO 7-5)

No. Just as we don't depreciate land because it has an unlimited life, we don't amortize intangible assets with unlimited service lives such as goodwill and most trademarks. For most other intangible assets that have a finite service life, we allocate the asset's cost less any estimated residual value over the period in which we expect the intangible asset to contribute to the company's revenue-generating activities. This period is called service life and is either equal to or, in many cases, less than an asset's legal life. For example, the legal life of a patent is 20 years. However, the estimated service life of a patent often is less than 20 years if the benefits are not expected to continue for the entire legal life. Apple's iPod Touch is amortized over fewer than 20 years, since new technology will cause the Touch to become outdated in a much shorter period.

Answers to Review Questions (continued)

Question 7-24 (LO 7-6)

Book value is the cost of the asset minus accumulated depreciation. We record a gain if we sell the asset for *more* than book value. Similarly, we record a loss if we sell the asset for *less* than book value.

Question 7-25 (LO 7-7)

Return on assets equals net income divided by average total assets. Return on assets indicates the amount of net income generated for each dollar invested in assets. Profit margin equals net income divided by net sales. This ratio provides an indication of the earnings per dollar of sales. Asset turnover equals net sales divided by average total assets. In contrast to profit margin, this ratio measures the sales per dollar of assets invested.

Question 7-26 (LO 7-7)

Examples of high profit margin include companies that pursue a higher profit margin through *product differentiation* and *premium pricing*. Apple and Saks Fifth Avenue are possible examples. Examples of high asset turnover include companies that pursue a high sales volume by charging *lower prices*. Dell and Ross Dress for Less are possible examples.

Question 7-27 (LO 7-8)

An asset impairment occurs when the future cash flows (future benefits) that we estimate a long-term asset will generate, fall below its book value (cost minus accumulated depreciation). Impairment is a two-step process. Step 1: Test for Impairment – the long-term asset is impaired if future cash flows are less than book value. Step 2: If Impaired, Record Impairment Loss – the impairment loss is the amount by which book value exceeds fair value. Recording an impairment loss will negatively affect the income statement through lower net income and negatively affect the balance sheet through lower long-term assets and retained earnings.

Question 7-28 (LO 7-8)

A big bath is when a company records all losses in one year to make a bad current year even worse. By recording additional expenses in the current year, management is able to report higher earnings in future years. Future earnings are higher because the write-down of assets in this year results in lower depreciation and amortization charges in the future.

BRIEF EXERCISES

Brief Exercise 7-1 (LO 7-1)

Purchase price of land (and warehouse to be removed)	\$490,000
Broker's commission	29,000
Title insurance	1,900
Closing costs	6,000
Cost of removing the warehouse	29,000
Total cost of the land	<u>\$555,900</u>

	Debit	Credit
Land	555,900	
Cash <i>(Purchase of land)</i>		555,900

Brief Exercise 7-2 (LO 7-1)

Purchase price	\$30,000
Freight	2,000
Installation	4,000
Testing	1,500
Total cost of the bread machine	<u>\$37,500</u>

The \$600 property tax is a recurring cost that benefits the company in the current year. The Whole Grain Bakery will report the \$600 as property tax expense in the current year.

Brief Exercise 7-3 (LO 7-1)

	<u>Estimated Fair Value</u>	<u>Allocation Percentage</u>	<u>Amount of Basket Purchase</u>	<u>Recorded Amount</u>
Building	\$400,000	$\$400,000/\$480,000 = 83.33\% (= 5/6)$	$\times \$450,000$	\$375,000
Equipment	<u>80,000</u>	$\$80,000/\$480,000 = 16.67\% (= 1/6)$	$\times \$450,000$	<u>75,000</u>
Total	<u>\$480,000</u>			<u>\$450,000</u>

Brief Exercise 7-4 (LO 7-2)

(in millions)

Purchase price		\$19.0
Less:		
Fair value of assets acquired	\$14.3	
Less: fair value of liabilities assumed	<u>(2.5)</u>	
Fair value of identifiable net assets		<u>11.8</u>
Amount paid for goodwill		<u>\$ 7.2</u>

Brief Exercise 7-5 (LO 7-2)

Salaries for R&D	\$540,000
Depreciation on R&D facilities and equipment	145,000
Utilities incurred for the R&D facilities	7,000
Payment to another company for part of the development work	13,000
Total research and development expense	<u><u>\$705,000</u></u>

The \$27,000 in patent filing and related legal costs are recorded to the patent intangible asset account.

Brief Exercise 7-6 (LO 7-3)

- (1) Expense in the period incurred.
- (2) Capitalize and depreciate over the service life of the asset.
- (3) Capitalize and depreciate over the service life of the asset.
- (4) Capitalize and depreciate over the service life of the asset.

Brief Exercise 7-7 (LO 7-3)

\$240,000

Betty Foods can capitalize legal fees only for the successful defense.

Brief Exercise 7-8 (LO 7-4)

No. The company controller's approach to measuring depreciation is not correct. Depreciation in accounting is allocating the cost of an asset to an expense over its service life. For example, the controller could allocate the \$40,000 cost of the vehicle over a 5-year service life, recording \$8,000 in depreciation expense each year.

Brief Exercise 7-9 (LO 7-4)

Year				
2024	$\frac{(\$45,000 - \$6,000)}{10}$	=	$\$3,900 \times 4/12$	= $\$1,300$
2025	$\frac{(\$45,000 - \$6,000)}{10}$	=	$\$3,900$	

Brief Exercise 7-10 (LO 7-4)

1. Straight-line

$$\text{Depreciation expense} = \frac{\$30,000 - \$3,000}{4 \text{ years}} = \underline{\underline{\$6,750}}$$

2. Double-declining-balance

$$\text{Depreciation expense} = \$30,000 \times 2/4 = \underline{\underline{\$15,000}}$$

3. Activity-based

$$\text{Depreciation expense} = \frac{\$30,000 - \$3,000}{20,000 \text{ hours}} = \$1.35 \text{ per hour} \times 3,100 \text{ hours} = \underline{\underline{\$4,185}}$$

Brief Exercise 7-11 (LO 7-4)

Year 1	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	6,750	
Accumulated Depreciation		6,750
$(\$30,000 - \$3,000)/4 = \$6,750$		

Year 2	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	6,750	
Accumulated Depreciation		6,750
$(\$30,000 - \$3,000)/4 = \$6,750$		

Brief Exercise 7-12 (LO 7-4)

Year 1	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	4,185	
Accumulated Depreciation		4,185
(\$30,000 – \$3,000)/20,000 hours = 1.35/hour (3,100 hours × \$1.35 = \$4,185)		

Year 2	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	4,590	
Accumulated Depreciation		4,590
(\$30,000 – \$3,000)/20,000 hours = 1.35/hour (3,400 hours × \$1.35 = \$4,590)		

Brief Exercise 7-13 (LO 7-4)

Straight-line

$$\text{Depreciation expense} = \frac{\$50,000 - \$10,000}{8 \text{ years}} = \underline{\underline{\$5,000}}$$

$$\text{Depreciation after 6 years} = \$5,000 \times 6 = \$30,000$$

$$\text{Book value after 6 years} = \$50,000 - \$30,000 = \$20,000$$

$$\text{Depreciation Expense in the seventh year} = \frac{\$20,000 - \$10,000}{4 \text{ years}} = \underline{\underline{\$2,500}}$$

Brief Exercise 7-14 (LO 7-5)

$$\text{Amortization expense} = \frac{\$4,000,000}{5 \text{ years}} = \$800,000$$

The \$5 million trademark and the \$6 million goodwill are not amortized, because they have indefinite service lives.

Brief Exercise 7-15 (LO 7-6)

	<u>Debit</u>	<u>Credit</u>
Cash	16,000	
Accumulated Depreciation	71,000	
Loss	3,000	
Equipment		90,000
<i>(Sell of equipment for a loss)</i>		

Sale amount		\$16,000
Less:		
Cost of the ice cream equipment	\$90,000	
Less: Accumulated depreciation	<u>(71,000)</u>	
Book value		<u>19,000</u>
Loss (on sale of the equipment)		<u>\$ (3,000)</u>

Brief Exercise 7-16 (LO 7-6)

	<u>Debit</u>	<u>Credit</u>
Cash	25,000	
Accumulated Depreciation	51,000	
Equipment		72,000
Gain		4,000
<i>(Sell of equipment for a gain)</i>		

Sale amount		\$25,000
Less:		
Cost of the baking equipment	\$72,000	
Less: Accumulated depreciation	<u>(51,000)</u>	
Book value		<u>21,000</u>
Gain (on sale of the equipment)		<u>\$ 4,000</u>

Brief Exercise 7-17 (LO 7-6)

	<u>Debit</u>	<u>Credit</u>
Loss	8,000	
Accumulated Depreciation	12,000	
Building		20,000
<i>(Retire a building)</i>		

Accumulated depreciation = $(\$20,000/5 \text{ years}) \times 3 \text{ years} = \$12,000$

Brief Exercise 7-18 (LO 7-6)

	<u>Debit</u>	<u>Credit</u>
Equipment (Delivery)	31,000	
Accumulated Depreciation	33,000	
Cash		9,000
Equipment (Restaurant)		45,000
Gain		10,000
<i>(Exchange long-term assets)</i>		

Brief Exercise 7-19 (LO 7-6)

	<u>Debit</u>	<u>Credit</u>
Equipment (Restaurant)	22,000	
Accumulated Depreciation	4,400	
Loss	1,600	
Cash	9,000	
Equipment (Delivery)		37,000
<i>(Exchange long-term assets)</i>		

Brief Exercise 7-20 (LO 7-7)

$$\frac{\text{Net income}}{(\$840,000 + \$930,000) \div 2} = 20\%$$

$$\frac{\text{Net income}}{\$885,000} = 20\%$$

$$\text{Net income} = 20\% \times \$885,000 = \$177,000$$

Brief Exercise 7-21 (LO 7-8)

Step 1: Test for Impairment

The long-term asset is *not* impaired since future cash flows (\$38 million) are greater than book value (\$33.5 million).

Step 2: If Impaired, Record Loss

Since the asset does not meet the first test for impairment, no impairment loss is recorded.

Brief Exercise 7-22 (LO 7-8)

Step 1: Test for Impairment

The long-term asset is impaired since future cash flows (\$32 million) are less than book value (\$33.5 million).

Step 2: If Impaired, Record Loss

The impairment loss is \$3.5 million, calculated as the amount by which book value (\$33.5 million) exceeds fair value (\$30 million).

Brief Exercise 7-23 (LO 7-1)

Income					
Statement:	Revenues	–	Expenses	=	Net Income

Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	+555,900				
	Land				
	–555,900				
	Cash				

Brief Exercise 7-24 (LO 7-4)

Year 1

Income					
Statement:	Revenues	–	Expenses	=	Net Income
			+6,750		–6,750
			Depreciation Expense		↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	–6,750				–6,750
	Accumulated Depreciation↑				

Year 2

Income					
Statement:	Revenues	–	Expenses	=	Net Income
			+6,750		–6,750
			Depreciation Expense		↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	–6,750				–6,750
	Accumulated Depreciation↑				

Brief Exercise 7-25 (LO 7-4)

Year 1

Income					
Statement:	Revenues	–	Expenses	=	Net Income
			+4,185		–4,185
			Depreciation Expense		↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	–4,185				–4,185
	Accumulated Depreciation↑				

Year 2

Income					
Statement:	Revenues	–	Expenses	=	Net Income
			+4,590		–4,590
			Depreciation Expense		↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	–4,590				–4,590
	Accumulated Depreciation↑				

Brief Exercise 7-26 (LO 7-6)

Income					
Statement:	Revenues	–	Expenses	=	Net Income
			+3,000		–3,000
			Loss		
					↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	+16,000				–3,000
	Cash				
	+71,000				
	Accumulated				
	Depreciation↓				
	–90,000				
	Equipment				

Brief Exercise 7-27 (LO 7-6)

Income					
Statement:	Revenues	–	Expenses	=	Net Income
	+4,000				+4,000
	Gain				
					↓
Balance					
Sheet:	Assets	=	Liabilities	+	Stockholders' Equity
	+25,000				+4,000
	Cash				
	+51,000				
	Accumulated				
	Depreciation↓				
	–72,000				
	Equipment				

EXERCISES

Exercise 7-1 (LO 7-1)

Purchase price of land (and building to be removed)	\$1,000,000
Title insurance	3,000
Back property taxes	9,000
Cost of removing the building	50,000
Less: Salvaged materials	(5,000)
Level the land	11,000
Total cost of the land	<u>\$1,068,000</u>

For property taxes, \$5,000 relates only to the current period and we expense it in the current period. All of the other costs, including the \$9,000 in back property taxes, are necessary to acquire the land so we capitalize them. Note that the salvaged materials that were sold for \$5,000 reduce the overall cost of the land.

Exercise 7-2 (LO 7-1)

Purchase price	\$75,000
Sales tax	6,000
Shipping	1,000
Installation	2,000
Total cost	<u>\$84,000</u>

With the exception of the \$700 annual insurance, each of the expenditures described is necessary to bring the machine to its condition and location for use. Orion will initially report the \$700 insurance amount as prepaid insurance and expense it over the first year of coverage.

	Debit	Credit
Equipment	84,000	
Prepaid Insurance	700	
Cash		84,700
<i>(Purchase of equipment)</i>		

Exercise 7-3 (LO 7-1)

	<u>Estimated Fair Value</u>	<u>Allocation Percentage</u>	<u>Amount of Basket Purchase</u>	<u>Recorded Amount</u>
Land	\$175,000	$\$175,000/\$700,000 = 25\%$	X \$600,000	\$150,000
Building	455,000	$\$455,000/\$700,000 = 65\%$	X \$600,000	390,000
Equipment	<u>70,000</u>	$\$70,000/\$700,000 = 10\%$	X \$600,000	<u>60,000</u>
Total	<u>\$700,000</u>			<u>\$600,000</u>

Exercise 7-4 (LO 7-1, 7-4)

	Debit	Credit
1. Patents	600,000	
Cash		600,000
<i>(Purchase patent)</i>		
2. Research and Development Expense	500,000	
Cash		500,000
<i>(Incur research and development costs)</i>		
3. Research and Development Expense	450,000	
Cash		450,000
<i>(Incur research and development costs)</i>		
4. Advertising Expense	250,000	
Cash		250,000
<i>(Incur advertising costs)</i>		

Exercise 7-5 (LO 7-2)

	Debit	Credit
Legal Fees Expense	9,000	
Patents	42,500	
Advertising Expense	80,000	
Cash		131,500
(Record cash expenditures)		

Exercise 7-6 (LO 7-2)

(amounts in millions)

Purchase price		\$30
Less:		
Fair value of assets acquired		\$45
Less: fair value of liabilities assumed		<u>(20)</u>
Fair value of identifiable net assets		<u>25</u>
Goodwill		<u>\$ 5</u>

Exercise 7-7 (LO 7-2)

1. Patent costs capitalized

Legal fees for patent application	\$ 79,000
Legal fees for successful defense	<u>39,000</u>
Total costs capitalized	<u>\$118,000</u>

2. Expense items on income statement

Basic research to develop the technology	\$3,900,000
Engineering design work	1,180,000
Development of prototype device	590,000
Testing and modification of the prototype	<u>390,000</u>
Total R&D expense	<u>\$6,060,000</u>

3. Purchased intangible assets are usually capitalized. Internally developed intangible assets are usually expensed.

Exercise 7-8 (LO 7-2, 7-4)

List A	List B
<u>f</u> 1. Depreciation	a. Exclusive right to display a word, a symbol, or an emblem.
<u>e</u> 2. Goodwill	b. Exclusive right to benefit from a creative work.
<u>g</u> 3. Amortization	c. Assets that represent contractual rights.
<u>d</u> 4. Natural resources	d. Oil and gas deposits, timber tracts, and mineral deposits.
<u>c</u> 5. Intangible assets	e. Purchase price less fair value of net identifiable assets.
<u>b</u> 6. Copyright	f. The allocation of cost for plant and equipment.
<u>a</u> 7. Trademark	g. The allocation of cost for intangible assets.

Exercise 7-9 (LO 7-3)

- | | <u>Debit Account</u> |
|----|---------------------------------|
| 1. | Equipment |
| 2. | Building |
| 3. | Repairs and Maintenance Expense |
| 4. | Prepaid Insurance |
| 5. | Equipment |
| 6. | Land Improvements |

Exercise 7-10 (LO 7-4)

1. Straight-line

$$\text{Depreciation expense} = \frac{\$29,500 - \$3,500}{10 \text{ years}} = \underline{\underline{\$2,600}}$$

2. Double-declining-balance

$$\text{Depreciation expense} = \$29,500 \times 2/10 = \underline{\underline{\$5,900}}$$

3. Activity-based

$$\text{Depreciation expense} = \frac{\$29,500 - \$3,500}{13,000 \text{ hours}} = \$2.00 \text{ per hour} \times 1,700 \text{ hours} = \underline{\underline{\$3,400}}$$

Exercise 7-11 (LO 7-4)

Requirement 1

$$\begin{array}{l} \text{Straight-line} \\ \text{Depreciation} \\ \text{expense} \end{array} = \frac{\$90,000 - \$30,000}{6 \text{ years}} = \mathbf{\$10,000 \text{ per year}}$$

Requirement 2

Double-declining-balance

Year	Calculation			=	End-of-Year Amounts		
	Beginning Book Value	×	Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	90,000	×	2/6		30,000	30,000	60,000
2	60,000	×	2/6		20,000	50,000	40,000

* $2 \times 1/6$ SL rate = $2/6$ per year

** \$90,000 cost minus accumulated depreciation

Requirement 3

Activity-based

Year	Calculation			=	End-of-Year Amounts		
	Miles Used	×	Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	32,000	×	\$0.30		9,600	9,600	80,400
2	35,000	×	\$0.30		10,500	20,100	69,900

* $(\$90,000 - \$30,000) / 200,000$ miles = \$0.30/mile

** \$90,000 cost minus accumulated depreciation

Exercise 7-12 (LO 7-4)

<u>Year</u>					
2024	$(\$18,000 - \$2,000)$	=	$\$3,200 \times 9/12$	=	$\$2,400$
	5 years				
2025	$(\$18,000 - \$2,000)$	=	$\$3,200$		
	5 years				

Exercise 7-13 (LO 7-4)

<u>Year</u>			
2024	$\frac{(\$120,000 - \$40,000)}{4 \text{ years}}$	$\times 3/12$	$= \$5,000$
2025	$\frac{(\$120,000 - \$40,000)}{4 \text{ years}}$		$= \$20,000$

Exercise 7-14 (LO 7-4)

Cost of the equipment	\$19,000
Less: Accumulated depreciation (Years 1 and 2)	<u>(8,000)*</u>
Book value, end of year 2	11,000
Less: New residual value	<u>(1,200)</u>
New depreciable cost	9,800
÷ Remaining service life	<u>÷ 4</u>
Annual depreciation in years 3 to 6	<u>\$ 2,450</u>

* $(\$19,000 - \$3,000) / 4 \text{ years} = \$4,000 \text{ per year} \times 2 \text{ years} = \$8,000$

Exercise 7-15 (LO 7-4)

$$\frac{(\$120,000 - \$40,000)}{100,000 \text{ miles}} = \$0.80/\text{mile}$$

<u>Year</u>			
2024	5,000 miles	$\times \$0.80 =$	<u>\$ 4,000</u>
2025	28,000 miles	$\times \$0.80 =$	<u>\$22,400</u>

Exercise 7-16 (LO 7-5)

Requirement 1

	<u>Debit</u>	<u>Credit</u>
<u>January 1, 2024</u>		
Patents	237,000	
Cash		237,000
<u>December 31, 2024</u>		
Amortization Expense	39,500	
Patents		39,500
<u>December 31, 2025</u>		
Amortization Expense	39,500	
Patents		39,500
<u>January, 2026</u>		
Patents	57,000	
Cash		57,000
<u>December 31, 2026</u>		
Amortization Expense*	53,750	
Patents		53,750

$$* (\$237,000 - \$39,500 - \$39,500 + \$57,000) / 4 \text{ remaining years} = \$53,750$$

Requirement 2

Balance in the Patent account	
Patent	
237,000	39,500
57,000	39,500
	53,750
161,250	

Exercise 7-17 (LO 7-6)

Requirement 1

	<u>Debit</u>	<u>Credit</u>
Cash	21,600	
Accumulated Depreciation	23,400*	
Equipment		42,000
Gain		3,000
<i>(Sell equipment for a gain)</i>		
* $(\$42,000 - \$3,000) / 5 = \$7,800$ per year x 3 years = \$23,400		

Requirement 2

	<u>Debit</u>	<u>Credit</u>
Cash	13,600	
Accumulated Depreciation	23,400	
Loss	5,000	
Equipment		42,000
<i>(Sell equipment for a loss)</i>		

Exercise 7-18 (LO 7-6)

Requirement 1

Fair value of the old land	\$132,000
Cash paid to complete the purchase	<u>19,000</u>
Fair value of the new land	<u><u>\$151,000</u></u>

Requirement 2

	<u>Debit</u>	<u>Credit</u>
Land, New	151,000	
Land, Old		70,000
Cash		19,000
Gain		62,000
<i>(Exchange land)</i>		

Exercise 7-19 (LO 7-7)

Net Income	÷	Average Total Assets	=	Return on Assets
\$28,000	÷	(\$389,000 + \$496,000)/2	=	6.3%
Net Income	÷	Sales	=	Profit Margin
\$28,000	÷	\$735,000	=	3.8%
Sales	÷	Average Total Assets	=	Asset Turnover
\$735,000	÷	(\$389,000 + \$496,000)/2	=	1.7 times

Exercise 7-20 (LO 7-8)

Requirement 1

Step 1: Test for Impairment

The long-term asset is impaired since future cash flows (\$7.1 million) are less than book value (\$8.6 million).

Step 2: If Impaired, Record Loss

The impairment loss is \$2.7 million calculated as the amount by which book value (\$8.6 million) exceeds fair value (\$5.9 million).

Requirement 2

Step 1: Test for Impairment

The long-term asset is not impaired since future cash flows (\$10 million) exceed book value (\$8.6 million).

Step 2: If Impaired, Record Loss

Since the asset does not meet the first test for impairment, no impairment loss is recorded.

Exercise 7-21

Requirement 1

<u>January 1</u>	<u>Debit</u>	<u>Credit</u>
Equipment	19,500	
Cash		19,500
<i>(Purchase equipment for cash)</i>		
<u>January 4</u>	<u>Debit</u>	<u>Credit</u>
Accounts Payable	9,500	
Cash		9,500
<i>(Pay cash on account)</i>		
<u>January 8</u>	<u>Debit</u>	<u>Credit</u>
Inventory	82,900	
Accounts Payable		82,900
<i>(Purchase inventory on account)</i>		
<u>January 15</u>	<u>Debit</u>	<u>Credit</u>
Cash	22,000	
Accounts Receivable		22,000
<i>(Receive cash on account)</i>		
<u>January 19</u>	<u>Debit</u>	<u>Credit</u>
Salaries Expense	29,800	
Cash		29,800
<i>(Pay for salaries)</i>		
<u>January 28</u>	<u>Debit</u>	<u>Credit</u>
Utilities Expense	16,500	
Cash		16,500
<i>(Pay for utilities)</i>		
<u>January 30</u>	<u>Debit</u>	<u>Credit</u>
Accounts Receivable	220,000	
Sales Revenue		220,000
<i>(Sell inventory on account)</i>		
Cost of Goods Sold	115,000	
Inventory		115,000
<i>(Record cost of inventory sold)</i>		

Exercise 7-21 (continued)

Requirement 2

<u>(a) January 31</u>	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	300	
Accumulated Depreciation		300
<i>(Record depreciation)</i>		
<i>(\$300 = [$\\$19,500 - \\$1,500$] / 60 months)</i>		
<u>(b) January 31</u>	<u>Debit</u>	<u>Credit</u>
Bad Debt Expense	5,900	
Allowance for Uncollectible Accounts		5,900
<i>(Adjust uncollectible accounts)</i>		
<u>(c) January 31</u>	<u>Debit</u>	<u>Credit</u>
Interest Receivable	50	
Interest Revenue		50
<i>(Adjust for interest receivable)</i>		
<i>(\$50 = $\\$12,000 \times 5\% \times 1/12$)</i>		
<u>(d) January 31</u>	<u>Debit</u>	<u>Credit</u>
Salaries Expense	32,600	
Salaries Payable		32,600
<i>(Adjust for salaries owed)</i>		
<u>(e) January 31</u>	<u>Debit</u>	<u>Credit</u>
Income Tax Expense	9,000	
Income Tax Payable		9,000
<i>(Adjust for income taxes owed)</i>		

Exercise 7-21 (continued)
Requirement 3

TNT Fireworks
Adjusted Trial Balance
January 31, 2024

Accounts	Debit	Credit
Cash	\$ 5,400	
Accounts Receivable	223,000	
Allowance for Uncollectible Accounts		\$ 8,100
Interest Receivable	50	
Inventory	4,200	
Notes Receivable	12,000	
Land	155,000	
Equipment	19,500	
Accumulated Depreciation		300
Accounts Payable		88,200
Salaries Payable		32,600
Income Tax Payable		9,000
Common Stock		220,000
Retained Earnings		50,000
Sales Revenue		220,000
Interest Revenue		50
Cost of Goods Sold	115,000	
Salaries Expense	62,400	
Utilities Expense	16,500	
Bad Debt Expense	5,900	
Depreciation Expense	300	
Income Tax Expense	9,000	
Totals	<u>\$628,250</u>	<u>\$628,250</u>

Exercise 7-21 (continued)
Requirement 3 (continued)

Accounts	Ending Balance	Beginning balance in bold , entries during January in blue , and adjusting entries in red .
Cash	5,400	= 58,700 −19,500−9,500+22,000−29,800−16,500
Accounts Receivable	223,000	= 25,000 −22,000+220,000
Allowance for Uncollectible Accounts	8,100	= 2,200 +5,900
Interest Receivable	50	= 50
Inventory	4,200	= 36,300 +82,900−115,000
Notes Receivable	12,000	= 12,000
Land	155,000	= 155,000
Equipment	19,500	= 19,500
Accumulated Depreciation	300	= 300
Accounts Payable	88,200	= 14,800 −9,500+82,900
Salaries Payable	32,600	= 32,600
Income Tax Payable	9,000	= 9,000
Common Stock	220,000	= 220,000
Retained Earnings	50,000	= 50,000
Sales Revenue	220,000	= 220,000
Interest Revenue	50	= 50
Cost of Goods Sold	115,000	= 115,000
Salaries Expense	62,400	= 29,800 +32,600
Utilities Expense	16,500	= 16,500
Bad Debt Expense	5,900	= 5,900
Depreciation Expense	300	= 300
Income Tax Expense	9,000	= 9,000

Exercise 7-21 (continued)
Requirement 4

TNT Fireworks		
Multiple-Step Income Statement		
For the month ended January 31, 2024		
Sales revenue	\$220,000	
Cost of goods sold	115,000	
Gross profit		\$105,000
Salaries expense	62,400	
Utilities expense	16,500	
Bad debt expense	5,900	
Depreciation expense	300	
Total operating expenses		85,100
Operating income		19,900
Interest revenue	50	
Income before taxes		19,950
Income tax expense	9,000	
Net income		\$ 10,950

Requirement 5

TNT Fireworks			
Balance Sheet			
January 31, 2024			
<u>Assets</u>		<u>Liabilities</u>	
<i>Current assets:</i>		<i>Current liabilities:</i>	
Cash	\$ 5,400	Accounts payable	\$ 88,200
Accounts receivable	\$223,000	Salaries payable	32,600
Less: Allowance	(8,100)	Income tax payable	9,000
Interest receivable	50	Total current liabilities	129,800
Inventory	4,200		
Total current assets	224,550		
 <i>Long-term assets:</i>		 <u>Stockholders' Equity</u>	
Notes receivable	12,000	Common stock	220,000
Land	155,000	Retained earnings	60,950 *
Equipment	19,500	Total stockholders' equity	280,950
Less: Accumulated depreciation	(300)	Total liabilities and stockholders' equity	\$410,750
Total assets	\$410,750		

* Retained earnings = Beginning retained earnings + Net income – Dividends
= \$50,000 + \$10,950 – \$0
= \$60,950

Exercise 7-21 (concluded)
Requirement 6

January 31, 2024	Debit	Credit
Sales Revenue	220,000	
Interest Revenue	50	
Retained Earnings (Close revenue accounts)		220,050
Retained Earnings	209,100	
Cost of goods sold		115,000
Salaries expense		62,400
Utilities expense		16,500
Bad debt expense		5,900
Depreciation expense		300
Income tax expense (Close expense accounts)		9,000

Requirement 7

(a) The return on assets ratio is:

$$\text{Return on Assets Ratio} = \frac{\text{Net income}}{\text{Average total assets}} = \frac{\$10,950}{(\$284,800 + \$410,750) / 2} = \mathbf{3.1\%}$$

Compared to the industry average of 2%, TNT Fireworks is **more** profitable than other companies in the same industry. Note these are monthly, rather than annual, return on asset calculations. A consistent monthly return on assets of 1% results in a 12% return on assets for the entire year.

(b) The profit margin is:

$$\text{Profit Margin} = \frac{\text{Net income}}{\text{Net sales}} = \frac{\$10,950}{\$220,000} = \mathbf{5.0\%}$$

Compared to the industry average profit margin of 4%, TNT Fireworks is **more** efficient at converting sales to profit than other companies in the same industry.

(c) The asset turnover ratio is:

$$\text{Asset Turnover Ratio} = \frac{\text{Net sales}}{\text{Average total assets}} = \frac{\$220,000}{(\$284,800 + \$410,750) / 2} = \mathbf{0.63 \text{ times}}$$

Compared to the industry average asset turnover of 0.5 times per month, TNT Fireworks is also more efficient at producing revenues with their assets.

PROBLEMS: SET A

Problem 7-1A (LO 7-1)

	<u>Land</u>	<u>Building</u>
Purchase price of land	\$70,000	
Demolition of old building	9,000	
Sale of salvaged materials	(1,100)	
Architect fees (for new building)		\$ 20,000
Legal fees (for title investigation of land)	3,000	
Building construction costs		600,000
Interest costs related to the construction		23,000
Totals	<u>\$80,900</u>	<u>\$643,000</u>

The property taxes on the land of \$4,000 will be recorded as property tax expense over the first year.

Problem 7-2A (LO 7-1)

Requirement 1

The ovens should be recorded in the Great Harvest equipment account as detailed in the following schedule:

Purchase price	\$700,000
Freight costs	35,000
Electrical connections	5,000
Labor costs	37,800
Bread dough used in testing ovens	900
Safety guards	1,500
Total equipment	<u>\$780,200</u>

Requirement 2

The repair costs of \$4,000 for the oven damaged during installation should not be included in the equipment account as this is not a normal cost to get the asset ready for use. The repair costs of \$4,000 should be recorded as repairs expense on the income statement.

Problem 7-3A (LO 7-2)

1. The amount Fresh Cut paid for goodwill is \$1.5 million, calculated as follows:

	(in millions)
Purchase price	\$12.0
Less:	
Fair value of assets acquired	13.2
Less: fair value of liabilities assumed	<u>(2.7)</u>
Fair value of identifiable net assets	<u>10.5</u>
Goodwill	<u>\$ 1.5</u>

2.

(in millions)	<u>Debit</u>	<u>Credit</u>
Accounts Receivable (at fair value)	1.6	
Equipment (at fair value)	9.9	
Patents (at fair value)	1.7	
Goodwill (remaining purchase price)	1.5	
Notes Payable (at fair value)		2.7
Cash (at purchase price)		12.0
<i>(Acquire Premium Meats and record goodwill)</i>		

Problem 7-4A (LO 7-3)

1. Capitalize
2. Expense
3. Capitalize
4. Capitalize
5. Expense
6. Expense

Problem 7-5A (LO 7-4)

Requirement 1 Straight-Line

University Car Wash						
Year	Calculation		=	End of Year Amounts		
	Depreciable Cost*	X Depreciation Rate		Depreciation Expense	Accumulated Depreciation	Book Value**
1	\$246,000	1/6		\$ 41,000	\$ 41,000	\$229,000
2	246,000	1/6		41,000	82,000	188,000
3	246,000	1/6		41,000	123,000	147,000
4	246,000	1/6		41,000	164,000	106,000
5	246,000	1/6		41,000	205,000	65,000
6	246,000	1/6		41,000	246,000	24,000
Total				<u>\$246,000</u>		

* \$270,000 – \$24,000 = \$246,000
 ** \$270,000 cost minus accumulated depreciation

Requirement 2 Double-declining-balance

University Car Wash						
Year	Calculation		=	End of Year Amounts		
	Beginning Book Value	X Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	\$270,000	1/3		\$ 90,000	\$ 90,000	\$180,000
2	180,000	1/3		60,000	150,000	120,000
3	120,000	1/3		40,000	190,000	80,000
4	80,000	1/3		26,667	216,667	53,333
5	53,333	1/3		17,778	234,445	35,555
6	35,555			11,555***	246,000	24,000
Total				<u>\$246,000</u>		

* 2 / 6 years = 1/3 per year
 ** \$270,000 cost minus accumulated depreciation
 *** Amount needed to reduce book value to residual value.

Requirement 3 Activity-based

University Car Wash

Year	Calculation		=	End of Year Amounts		
	Hours Used	X Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	3,100	\$20.50		\$ 63,550	\$ 63,550	\$206,450
2	1,100	\$20.50		22,550	86,100	183,900
3	1,200	\$20.50		24,600	110,700	159,300
4	2,800	\$20.50		57,400	168,100	101,900
5	2,600	\$20.50		53,300	221,400	48,600
6	1,200	\$20.50		24,600	246,000	24,000
Total	<u>12,000</u>			<u>\$246,000</u>		

* \$246,000 / 12,000 hours = \$20.50/hour

** \$270,000 cost minus accumulated depreciation

Problem 7-6A (LO 7-5)

Requirement 1

a. Goodwill is not amortized.

	<u>Debit</u>	<u>Credit</u>
b. Amortization Expense	11,750*	
Patents		11,750
<i>(Amortize patent)</i>		
* \$82,250 / 7 years		
c. Amortization Expense	18,500*	
Franchises		18,500
<i>(Amortize franchise)</i>		
* (\$333,000 / 9 years) x ½ year		

Requirement 2

**University Testing Services
Balance Sheet
December 31, 2024
(Intangible Assets section)**

<u>Intangible Assets</u>	
Goodwill	\$310,000
Patents (\$82,250 – \$11,750)	70,500
Franchises (\$333,000 – \$18,500)	<u>314,500</u>
Total intangible assets	<u><u>\$695,000</u></u>

Goodwill = Value of cash purchase of Heinrich Corporation – fair value of the net identifiable assets = \$3,510,000 – 3,200,000 = \$310,000

Problem 7-7A (LO 7-4, 7-5)

Requirement 1

	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	58,880*	
Accumulated Depreciation		58,880
<i>(Depreciate building)</i>		
* \$294,400 x 2/10		
Depreciation Expense	25,000*	
Accumulated Depreciation		25,000
<i>(Depreciate equipment)</i>		
* (\$235,000 – \$10,000)/9		

Requirement 2

	<u>Debit</u>	<u>Credit</u>
Amortization Expense	50,000*	
Patent		50,000
<i>(Amortize patent)</i>		
* \$250,000/5		

Requirement 3

Solich Sandwich Shop			
December 31, 2024			
	Cost	Accumulated Depreciation	Book Value
Land	\$ 95,000	–	\$ 95,000
Building	460,000	\$(224,480)	235,520
Equipment	235,000	(75,000)	160,000
Patent	250,000	(150,000)	100,000

Problem 7-8A (LO 7-6)

Requirement 1

$$\$170,000 = \frac{\$910,000 - \$60,000}{10} \times 2 \text{ years}$$

Requirement 2

Cost of the oven	\$910,000
Less: Accumulated depreciation	<u>(170,000)</u>
Book value at the end of year 2	<u><u>\$740,000</u></u>

Requirement 3

Sale amount		\$700,000
Less:		
Cost of the oven	\$910,000	
Less: Accumulated depreciation	<u>(170,000)</u>	
Book value at the end of year 2		<u>740,000</u>
Loss		<u><u>\$ (40,000)</u></u>

Requirement 4

	<u>Debit</u>	<u>Credit</u>
Cash	700,000	
Accumulated Depreciation	170,000	
Loss	40,000	
Equipment		910,000
(Sell equipment for a loss)		

Problem 7-9A (LO 7-7)

Requirement 1

Sub Station

Net Income	÷	Average Total Assets	=	Return on Assets
\$25,922	÷	(\$75,183 + \$116,371)/2	=	27.1%
Net Income	÷	Sales	=	Profit Margin
\$25,922	÷	\$108,249	=	23.9%
Sales	÷	Average Total Assets	=	Asset Turnover
\$108,249	÷	(\$75,183 + \$116,371)/2	=	1.1 times

Requirement 2

Planet Sub

Net Income	÷	Average Total Assets	=	Return on Assets
\$3,492	÷	(\$38,599 + \$44,533)/2	=	8.4%
Net Income	÷	Sales	=	Profit Margin
\$3,492	÷	\$62,071	=	5.6%
Sales	÷	Average Total Assets	=	Asset Turnover
\$62,071	÷	(\$38,599 + \$44,533)/2	=	1.5 times

Requirement 3

Sub Station has the more favorable profit margin, while Planet Sub has the more favorable asset turnover. This is consistent with their primary business strategies. Sub Station uses the highest quality ingredients to obtain higher profit margins, while Planet Sub emphasizes high sales turnover by selling at lower prices.

Problem 7-10A (LO 7-7)

Requirement 1

Sandwiches Only

Net Income	÷	Average Total Assets	=	Return on Assets
\$170,000	÷	\$500,000	=	34.0%
Net Income	÷	Net Sales	=	Profit Margin
\$170,000	÷	\$900,000	=	18.9%
Net Sales	÷	Average Total Assets	=	Asset Turnover
\$900,000	÷	\$500,000	=	1.8 times

Requirement 2

Sandwiches and Smoothies

Net Income	÷	Average Total Assets	=	Return on Assets
\$260,000	÷	\$900,000	=	28.9%
Net Income	÷	Net Sales	=	Profit Margin
\$260,000	÷	\$1,500,000	=	17.3%
Net Sales	÷	Average Total Assets	=	Asset Turnover
\$1,500,000	÷	\$900,000	=	1.67 times

Requirement 3

Do not go forward with the expansion plans. The return on assets, profit margin, and asset turnover are all lower with the addition of smoothies. Even though net income increases from \$170,000 to \$260,000, it comes at too great a cost. University Hero would be better off focusing on the more profitable sandwich line.

PROBLEMS: SET B

Problem 7-1B (LO 7-1)

	<u>Land</u>	<u>Building</u>
Purchase price of land	\$90,000	
Land clearing costs	5,000	
Sale of firewood to a worker	(400)	
Architect fees (for new building)		\$ 30,000
Legal fees (for title investigation of land)	3,500	
Building construction costs		400,000
Totals	<u>\$98,100</u>	<u>\$430,000</u>

The property taxes on the land of \$3,000 will be recorded as property tax expense over the first year.

Problem 7-2B (LO 7-1)

Requirement 1

The ovens should be recorded in the Sicily Pizza equipment account as detailed in the following schedule:

Purchase price	\$341,000
Shipping costs	16,000
Labor costs	17,000
Electrical work	3,800
Pizza dough for testing ovens	1,300
New timers	800
Total equipment	<u>\$379,900</u>

Requirement 2

All amounts were included in the Equipment account.

Problem 7-3B (LO 7-2)

1.

Purchase price		\$5,600,000
Less:		
Fair value of assets acquired	\$5,650,000	
Less: Fair value of liabilities assumed	(750,000)	
Fair value of identifiable net assets	<u>4,900,000</u>	
Goodwill		<u>\$ 700,000</u>

2.

	<u>Debit</u>	<u>Credit</u>
Accounts Receivable (at fair value)	650,000	
Buildings (at fair value)	4,800,000	
Equipment (at fair value)	200,000	
Goodwill (remaining purchase price)	700,000	
Accounts Payable (at fair value)		750,000
Cash (at purchase price) <i>(Acquire Pioneer Equipment Rental)</i>		5,600,000

Problem 7-4B (LO 7-3)

1. Expense
2. Capitalize
3. Capitalize
4. Expense
5. Expense
6. Capitalize

Problem 7-5B (LO 7-4)

Requirement 1 Straight-line

Cheetah Copy

Year	Calculation		=	End of Year Amounts		
	Depreciable Cost*	X Depreciation Rate		Depreciation Expense	Accumulated Depreciation	Book Value**
1	\$105,000	0.25		\$ 26,250	\$ 26,250	\$113,750
2	105,000	0.25		26,250	52,500	87,500
3	105,000	0.25		26,250	78,750	61,250
4	105,000	0.25		26,250	105,000	35,000
Total				<u>\$105,000</u>		

* \$140,000 – \$35,000 = \$105,000

** \$140,000 cost minus accumulated depreciation

Requirement 2 Double-declining-balance

Cheetah Copy

Year	Calculation		=	End of Year Amounts		
	Beginning Book Value	X Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	\$140,000	0.50		\$ 70,000	\$ 70,000	\$70,000
2	70,000	0.50		35,000	105,000	35,000
3	35,000	0.50		0***	105,000	35,000
4	35,000	0.50		0***	105,000	35,000
Total				<u>\$105,000</u>		

* 2 / 4 years = 0.50 per year

** \$140,000 cost minus accumulated depreciation

*** Asset is fully depreciated after two years.

Requirement 3 Activity-based

Cheetah Copy

Year	Calculation			=	End of Year Amounts		
	Hours Used	X	Depreciation Rate*		Depreciation Expense	Accumulated Depreciation	Book Value**
1	3,000		\$13.125		\$ 39,375	\$100,625	
2	2,000		\$13.125		26,250	74,375	
3	2,000		\$13.125		26,250	48,125	
4	2,000		\$13.125		13,125***	35,000	
Total	9,000				\$105,000		

* $\$105,000 / 8,000 \text{ hours} = \$13.125/\text{hour}$

** \$140,000 cost minus accumulated depreciation

*** Amount needed to reduce book value to residual value.

Problem 7-6B (LO 7-5)

Requirement 1

a. Goodwill is not amortized.

	<u>Debit</u>	<u>Credit</u>
b. Amortization Expense	5,500*	
Patents		5,500
<i>(Amortize patent)</i>		
* \$49,500 / 9 years		
c. Amortization Expense	13,500*	
Franchises		13,500
<i>(Amortize franchise)</i>		
* (\$216,000 / 8 years) x 1/2 year		

Requirement 2

**Lettuce Express
Balance Sheet
December 31, 2024
(Intangible Assets section)**

<u>Intangible Assets</u>	
Goodwill	\$160,000
Patents (\$49,500 – \$5,500)	44,000
Franchises (\$216,000 – \$13,500)	202,500
Total intangible assets	<u><u>\$406,500</u></u>

Problem 7-7B (LO 7-4, 7-5)

Requirement 1

	<u>Debit</u>	<u>Credit</u>
Depreciation Expense	71,680*	
Accumulated Depreciation <i>(Depreciate building)</i> * (\$358,400) x 2/10		71,680
Depreciation Expense	15,000*	
Accumulated Depreciation <i>(Depreciate equipment)</i> *(\$145,000 – \$10,000)/9		15,000

Requirement 2

	<u>Debit</u>	<u>Credit</u>
Amortization Expense	25,000*	
Patent <i>(Amortize patent)</i> * \$125,000/5		25,000

Requirement 3

Togo's Sandwich Shop December 31, 2024			
	Cost	Accumulated Depreciation	Book Value
Land	\$ 85,000	–	\$ 85,000
Building	560,000	\$(273,280)	286,720
Equipment	145,000	(45,000)	100,000
Patent	125,000	(75,000)	50,000

Problem 7-8B (LO 7-6)

Requirement 1

$$\$127,500 = \frac{\$455,000 - \$30,000}{10} \times 3 \text{ years}$$

Requirement 2

Cost of the oven	\$455,000
Less: Accumulated depreciation	<u>(127,500)</u>
Book value at the end of year 3	<u>\$327,500</u>

Requirement 3

Sale amount	\$341,000
Less:	
Cost of the oven	\$455,000
Less: Accumulated depreciation	<u>(127,500)</u>
Book value at the end of year 3	<u>327,500</u>
Gain	<u>\$ 13,500</u>

Requirement 4

	<u>Debit</u>	<u>Credit</u>
Cash	341,000	
Accumulated Depreciation	127,500	
Gain		13,500
Equipment		455,000
<i>(Sell equipment for a gain)</i>		

Problem 7-9B (LO 7-7)

Requirement 1

Papa's Pizza

Net Income	÷	Average Total Assets	=	Return on Assets
\$2,223	÷	(\$14,998 + \$15,465)/2	=	14.6%

Net Income	÷	Sales	=	Profit Margin
\$2,223	÷	\$24,128	=	9.2%

Sales	÷	Average Total Assets	=	Asset Turnover
\$24,128	÷	(\$14,998 + \$15,465)/2	=	1.6 times

Requirement 2

Pizza Prince

Net Income	÷	Average Total Assets	=	Return on Assets
\$129	÷	(\$919 + \$1,157)/2	=	12.4%

Net Income	÷	Sales	=	Profit Margin
\$129	÷	\$1,835	=	7.0%

Sales	÷	Average Total Assets	=	Asset Turnover
\$1,835	÷	(\$919 + \$1,157)/2	=	1.8 times

Requirement 3

Papa's Pizza has a more favorable profit margin than Pizza Prince (9.2% vs. 7.0%), while Pizza Prince has a slightly more favorable asset turnover (1.8 times vs. 1.6 times). Overall, Papa's Pizza has a return on assets of 14.6% compared to 12.4% for Pizza Prince.

Problem 7-10B (LO 7-7)

Requirement 1

Cars Only

Net Income	÷	Average Total Assets	=	Return on Assets
\$500,000	÷	\$1,700,000	=	29.4%
Net Income	÷	Sales	=	Profit Margin
\$500,000	÷	\$6,500,000	=	7.7%
Sales	÷	Average Total Assets	=	Asset Turnover
\$6,500,000	÷	\$1,700,000	=	3.8 times

Requirement 2

Cars and Boats

Net Income	÷	Average Total Assets	=	Return on Assets
\$700,000	÷	\$1,900,000	=	36.8%
Net Income	÷	Sales	=	Profit Margin
\$700,000	÷	\$7,700,000	=	9.1%
Sales	÷	Average Total Assets	=	Asset Turnover
\$7,700,000	÷	\$1,900,000	=	4.1 times

Requirement 3

Go forward with the expansion plans to include the sale of recreational boats. The return on assets, profit margin, and asset turnover are all higher with the additional sale of boats.