CHAPTER 9
FIXED ASSETS AND INTANGIBLE ASSETS

CLASS DISCUSSION QUESTIONS

1. a. Tangible
   b. Capable of repeated use in the operations of the business
   e. Long-lived
2. a. Property, plant, and equipment
   b. Current assets (merchandise inventory)
3. Real estate acquired as speculation should be listed in the balance sheet under the caption "Investments," below the Current Assets section.
4. $375,000
5. Ordinarily not; if the book values closely approximate the market values of fixed assets, it is coincidental.
6. a. No, it does not provide a special cash fund for the replacement of assets. Unlike most expenses, however, depreciation expense does not require an equivalent outlay of cash in the period to which the expense is allocated.
   b. Depreciation is the cost of fixed assets periodically charged to revenue over their expected useful lives.
7. 12 years
8. a. No
   b. No
9. a. An accelerated depreciation method is most appropriate for situations in which the decline in productivity or earning power of the asset is proportionately greater in the early years of use than in later years, and the repairs tend to increase with the age of the asset.
   b. An accelerated depreciation method reduces income tax payable to the IRS in the earlier periods of an asset’s life. Thus, cash is freed up in the earlier periods to be used for other business purposes.
   c. MACRS was enacted by the Tax Reform Act of 1986 and provides for depreciation for fixed assets acquired after 1986.
10. No. Accounting Principles Board Opinion No. 20, Accounting Changes, is quite specific about the treatment of changes in depreciable assets’ estimated service lives. Such changes should be reflected in the amounts for depreciation expense in the current and future periods. The amounts recorded for depreciation expense in the past are not affected.
11. Capital expenditures are recorded as assets and include the cost of acquiring fixed assets, adding a component, or replacing a component of fixed assets. Revenue expenditures are recorded as expenses and are costs that benefit only the current period are incurred for normal maintenance and repairs of fixed assets.
12. Capital expenditure (component replacement)
13. a. No, the accumulated depreciation for an asset cannot exceed the cost of the asset. To do so would create a negative book value, which is meaningless.
   b. The cost and accumulated depreciation should be removed from the accounts when the asset is no longer useful and is removed from service. Presumably, the asset will then be sold, traded in, or discarded.
14. a. All purchases of fixed assets should be approved by an appropriate level of management. In addition, competitive bids should be solicited to ensure that the company is acquiring the assets at the lowest possible price.
   b. A physical count of fixed assets will verify the accuracy of accounting records. It will also detect missing fixed assets that should be removed from the records and obsolete or idle fixed assets that should be disposed of.
15. a. Over the years of its expected usefulness
   b. Expense as incurred
   c. Goodwill should not be amortized, but written down when impaired.
EXERCISES

Ex. 9–1

a. New printing press: 1, 2, 3, 4, 5
b. Secondhand printing press: 8, 9, 10, 12

Ex. 9–2

a. Yes. All expenditures incurred for the purpose of making the land suitable for its intended use should be debited to the land account.

b. No. Land is not depreciated.

Ex. 9–3

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost of land ($35,000 + $125,000)</td>
<td>$160,000</td>
</tr>
<tr>
<td>Plus: Legal fees</td>
<td>$ 1,100</td>
</tr>
<tr>
<td>Delinquent taxes</td>
<td>12,500</td>
</tr>
<tr>
<td>Demolition of building</td>
<td>18,000</td>
</tr>
<tr>
<td></td>
<td>31,600</td>
</tr>
<tr>
<td>Less salvage of materials</td>
<td>3,600</td>
</tr>
<tr>
<td>Cost of land</td>
<td>$188,000</td>
</tr>
</tbody>
</table>

Ex. 9–4

a. No. The $859,600 represents the original cost of the equipment. Its replacement cost, which may be more or less than $859,600, is not reported in the financial statements.

b. No. The $317,500 is the accumulation of the past depreciation charges on the equipment. The recognition of depreciation expense has no relationship to the cash account or accumulation of cash funds.

Ex. 9–5

(a) 5%, (b) 4%, (c) 2⅝%, (d) 25%, (e) 20%, (f) 10%, (g) 2%
Ex. 9–6

$18,000 \left[\left($312,000 – $42,000\right) ÷ 15\right]

Ex. 9–7

\[
\frac{$345,000 – $18,000}{75,000 \text{ hours}} = $4.36 \text{ depreciation per hour}
\]

1,250 hours at $4.36 = $5,450 depreciation for July

Ex. 9–8

a.

<table>
<thead>
<tr>
<th>Truck No.</th>
<th>Rate per Mile</th>
<th>Miles Operated</th>
<th>Accumulated Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20.0 cents</td>
<td>40,000</td>
<td>$8,000</td>
</tr>
<tr>
<td>2</td>
<td>21.0</td>
<td>12,000</td>
<td>2,100*</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>36,000</td>
<td>6,300</td>
</tr>
<tr>
<td>4</td>
<td>20.0</td>
<td>21,000</td>
<td>4,200</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$20,600</td>
</tr>
</tbody>
</table>

* Mileage depreciation of $2,520 (21 cents × 12,000) is limited to $2,100, which reduces the book value of the truck to $6,600, its residual value.

b. Depreciation Expense—Trucks................................. 20,600
   Accumulated Depreciation—Trucks ..................... 20,600

Ex. 9–9

<table>
<thead>
<tr>
<th>First Year</th>
<th>Second Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 8 1/3% of $84,000 = $7,000</td>
<td>8 1/3% of $84,000 = $7,000</td>
</tr>
<tr>
<td>b. 16 2/3% of $84,000 = $14,000</td>
<td>16 2/3% of $70,000* = $11,667</td>
</tr>
<tr>
<td>*$84,000 – $14,000</td>
<td></td>
</tr>
</tbody>
</table>
Ex. 9–10

a. 10% of \((98,500 - 7,500)\) = $9,100

b. Year 1: 20% of $98,500 = $19,700
   Year 2: 20% of \((98,500 - 19,700)\) = $15,760

Ex. 9–11

a. Year 1: \(9/12 \times \left[\frac{(54,000 - 10,800)}{12}\right]\) = $2,700
   Year 2: \((54,000 - 10,800) \div 12\) = $3,600

b. Year 1: \(9/12 \times 16 \frac{2}{3}\% \times 54,000 = $6,750\)
   Year 2: \(16 \frac{2}{3}\% \times (54,000 - 6,750) = $7,875\)

Ex. 9–12

a. $15,000 \left[\frac{(800,000 - 200,000)}{40}\right]

b. $500,000 \left[\frac{800,000 - (15,000 \times 20 \text{ yrs.})}{40}\right]

c. $14,000 \left[\frac{(500,000 - 150,000)}{25 \text{ yrs.}}\right]
Ex. 9–13

a.

<table>
<thead>
<tr>
<th></th>
<th>Current Year</th>
<th>Preceding Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and buildings</td>
<td>$ 426,322,000</td>
<td>$ 418,928,000</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>1,051,861,000</td>
<td>1,038,323,000</td>
</tr>
<tr>
<td>Total cost</td>
<td>$1,478,183,000</td>
<td>$1,457,251,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>633,178,000</td>
<td>582,941,000</td>
</tr>
<tr>
<td>Book value</td>
<td>$ 845,005,000</td>
<td>$ 874,310,000</td>
</tr>
</tbody>
</table>

A comparison of the book values of the current and preceding years indicates that they decreased. A comparison of the total cost and accumulated depreciation reveals that Interstate Bakeries purchased $20,932,000 ($1,478,183,000 – $1,457,251,000) of additional fixed assets, which was offset by the additional depreciation expense of $50,237,000 ($633,178,000 – 582,941,000) taken during the current year.

b. The book value of fixed assets should normally increase during the year. Although additional depreciation expense will reduce the book value, most companies invest in new assets in an amount that is at least equal to the depreciation expense. However, during periods of economic downturn, companies purchase fewer fixed assets, and the book value of their fixed may decline. This is apparently the case with Interstate Bakeries.

Ex. 9–14

Capital expenditures:
- New component: 4, 6, 7
- Replacement component: 1, 2, 9, 10

Revenue expenditures: 3, 5, 8

Ex. 9–15

Capital expenditures:
- New component: 4, 6, 7
- Replacement component: 2, 5, 8, 9, 10

Revenue expenditures: 1, 3
Ex. 9–16

a. Mar. 15 Removal Expense ........................................ 1,500
   ..........................................................Cash 1,500

b. Mar. 15 Depreciation Expense................................. 6,000
   ................. Accumulated Depreciation 6,000
   15 Accumulated Depreciation.............................. 18,000
   ..........................................................Carpet 18,000
   30 Carpet ................................................. 45,000
   ..........................................................Cash 45,000

c. Dec. 31 Depreciation Expense................................. 2,250*
   ................. Accumulated Depreciation 2,250

*($45,000 ÷ 15 years) × 9/12

Ex. 9–17

a. Initial cost of old alarm system .............................. $50,000
   Accumulated depreciation from old system ............. 35,000*
   Book value of old system charged to depreciation expense ................................. $15,000
   2006 depreciation expense on new component .......... 12,000
   Total depreciation expense .............................. $27,000

* ($50,000/10 years) × 7 years

b. Total depreciation expense (from [a]) ....................... $27,000
   Removal expense ........................................... 2,000
   Total expense for 2006 .................................... $29,000
Ex. 9–18

a. Cost of equipment ................................................................. $240,000
   Accumulated depreciation at December 31, 2006
   (4 years at $22,500* per year) ............................................ 90,000
   Book value at December 31, 2006 ........................................... $150,000
   *(240,000 – 15,000) ÷ 10 = 22,500

b. 1. Depreciation Expense—Equipment .............................. 11,250
   .......... Accumulated Depreciation—Equipment
   11,250

2. Cash ............................................................................. 135,000
   Accumulated Depreciation—Equipment .................. 101,250
   Loss on Disposal of Fixed Assets ........................ 3,750
   Equipment .......................................................... 240,000

Ex. 9–19

a. 2003 depreciation expense: $15,000 [($96,000 – $6,000) ÷ 6]
   2004 depreciation expense: $15,000
   2005 depreciation expense: $15,000

b. $51,000 ($96,000 – $45,000)

c. Cash ................................................................. 38,000
   Accumulated Depreciation—Equipment .............. 45,000
   Loss on Disposal of Fixed Assets ....................... 13,000
   Equipment ...................................................... 96,000


d. Cash ................................................................. 53,000
   Accumulated Depreciation—Equipment .............. 45,000
   Equipment ...................................................... 96,000
   Gain on Disposal of Fixed Assets ..................... 2,000

Ex. 9–20

a. $205,000 ($315,000 – $110,000)

b. $303,750 [$315,000 – ($110,000 – $98,750)], or
   $303,750 ($205,000 + $98,750)
Ex. 9–21

a. $205,000 ($315,000 – $110,000)
b. $315,000. The new printing press’s cost cannot exceed $220,000 on a similar exchange. The $18,500 loss on disposal ($128,500 book value – $110,000 trade-in allowance) must be recognized.

Ex. 9–22

a. Depreciation Expense—Equipment ..................... 8,000
   Accumulated Depreciation—Equipment .......... 8,000
b. Accumulated Depreciation—Equipment ............. 152,000
   Equipment ........................................ 385,000
   Loss on Disposal of Fixed Assets ............... 28,000
   Equipment ........................................ 280,000
   Cash ............................................. 35,000
   Notes Payable ................................... 250,000*

   *$385,000 – $100,000 – $35,000

Ex. 9–23

a. Depreciation Expense—Trucks ...................... 1,500
   Accumulated Depreciation—Trucks ............. 1,500
b. Accumulated Depreciation—Trucks ............... 37,500
   Trucks .......................................... 76,000
   Trucks .......................................... 62,500
   Cash ............................................ 11,000
   Notes Payable .................................. 40,000*

   *$80,000 – $29,000 – $11,000

Ex. 9–24

a. $55,000. The new truck’s cost cannot exceed $55,000 in a similar exchange.
b. $54,000 ($55,000 – $1,000) or
   $54,000 ($30,000 + $24,000)
Ex. 9–25

The managers at MarketNet Co. are not required to obtain approval before disposing of fixed assets. Managers may be disposing of assets that are in good working order and that are needed at another location within the company. Alternatively, managers may be persuaded to sell used assets to employees and replace them with new assets, even though the older items are still in good working order. This weakness in the internal control system could be minimized by establishing policies regarding the disposition of common assets, such as office equipment and vehicles. For example, a policy might state that vehicles must have over 80,000 miles before disposal is permitted.

Ex. 9–26

a. $80,000,000 ÷ 100,000,000 tons = $0.80 depletion per ton
   15,500,000 × $0.80 = $12,400,000 depletion expense

b. Depletion Expense .............................................. 12,400,000
   Accumulated Depletion .................................... 12,400,000

Ex. 9–27

a. ($472,500 ÷ 15) + ($75,000 ÷ 12) = $37,750 total patent expense

b. Amortization Expense—Patents ............................ 37,750
   Patents ...................................................................... 37,750

Ex. 9–28

1. Fixed assets should be reported at cost and not replacement cost.
2. Land does not depreciate.
3. Patents and goodwill are intangible assets that should be listed in a separate section following the fixed assets section. Patents should be reported at their net book values (cost less amortization to date). Goodwill should not be amortized, but should be only written down upon impairment.
Ex. 9–29

a. Current year: Ratio of fixed assets to long-term liabilities (debt) = $181,758,000/$14,610,000 = 12.4
   Preceding year: Ratio of fixed assets to long-term liabilities (debt) = $174,659,000/$12,150,000 = 14.4

b. The ratio of fixed assets to long-term liabilities has declined from 14.4 in the preceding year to 12.4 in the current year. This indicates a decrease in the margin of safety for long-term creditors. However, the ratio of fixed assets to long-term liabilities is large enough that Intuit will be able to borrow with relative ease.

Ex. 9–30

a. Current year: Ratio of fixed assets to long-term liabilities (debt) = $17,168,000,000/$1,321,000,000 = 13.0
   Preceding year: Ratio of fixed assets to long-term liabilities (debt) = $15,375,000,000/$1,250,000,000 = 12.3

b. The ratio of fixed assets to long-term liabilities has increased from 12.3 in the preceding year to 13.0 in the current year. This indicates an increase in the margin of safety for long-term creditors. Home Depot can borrow on a long-term basis with relative ease, since it has few long-term liabilities.

Appendix Ex. 9–31

First year: 12/78 × $84,000 = $12,923
Second year: 11/78 × $84,000 = $11,846

Appendix Ex. 9–32

First year: 10/55 × $91,000 = $16,545
Second year: 9/55 × $91,000 = $14,891

Appendix Ex. 9–33

First year: 9/12 × 12/78 × $43,200 = $4,985
Second year: (3/12 × 12/78 × $43,200) + (9/12 × 11/78 × $43,200) = $6,231
### PROBLEMS

#### Prob. 9–1A

1. | Item | Land Improvements | Building | Other Accounts |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>$ 5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>160,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>3,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>17,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>16,250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>12,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>(4,500)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td>11,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td></td>
<td>$ 7,200</td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td></td>
<td></td>
<td>50,000</td>
</tr>
<tr>
<td>k.</td>
<td></td>
<td></td>
<td>$ 2,500</td>
</tr>
<tr>
<td>l.</td>
<td></td>
<td></td>
<td>1,800</td>
</tr>
<tr>
<td>m.</td>
<td></td>
<td></td>
<td>$12,000</td>
</tr>
<tr>
<td>n.</td>
<td></td>
<td></td>
<td>18,500</td>
</tr>
<tr>
<td>o.</td>
<td></td>
<td></td>
<td>(4,000)*</td>
</tr>
<tr>
<td>p.</td>
<td></td>
<td></td>
<td>65,000</td>
</tr>
<tr>
<td>q.</td>
<td></td>
<td></td>
<td>(1,000,000)*</td>
</tr>
<tr>
<td>r.</td>
<td></td>
<td></td>
<td>1,250,000</td>
</tr>
<tr>
<td>s.</td>
<td></td>
<td></td>
<td>(1,200)*</td>
</tr>
</tbody>
</table>

2. | *Receipt $221,250 | $30,500 | $1,371,000 |

3. Since land used as a plant site does not lose its ability to provide services, it is not depreciated. However, land improvements do lose their ability to provide services as time passes and are therefore depreciated.
Prob. 9–2A

Depreciation Expense

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$ 50,000</td>
<td>$ 68,800</td>
<td>$107,000</td>
</tr>
<tr>
<td>2006</td>
<td>50,000</td>
<td>60,800</td>
<td>53,500</td>
</tr>
<tr>
<td>2007</td>
<td>50,000</td>
<td>38,400</td>
<td>26,750</td>
</tr>
<tr>
<td>2008</td>
<td>50,000</td>
<td>32,000</td>
<td>12,750</td>
</tr>
<tr>
<td>Total</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

Calculations:

Straight-line method:
\[\frac{($214,000 - $14,000)}{4} = $50,000\text{ each year}\]

Units-of-production method:
\[\frac{($214,000 - $14,000)}{31,250\text{ hours}} = $6.40\text{ per hour}\]

2005: 10,750 hours @ $6.40 = $68,800
2006: 9,500 hours @ $6.40 = $60,800
2007: 6,000 hours @ $6.40 = $38,400
2008: 5,000 hours @ $6.40 = $32,000

Declining-balance method:
2005: $214,000 \times 50\% = $107,000
2006: ($214,000 – $107,000) \times 50\% = $53,500
2007: ($214,000 – $107,000 – $53,500) \times 50\% = $26,750
2008: ($214,000 – $107,000 – $53,500 – $26,750 – $14,000*) = $12,750

*Book value should not be reduced below the residual value of $14,000.
Prob. 9–3A

a. Straight-line method:
   2005: \([\frac{($194,400 - 10,800)}{3} \times \frac{1}{2}]\) ................................... $30,600
   2006: \(\frac{($194,400 - 10,800)}{3}\) .............................................. 61,200
   2007: \(\frac{($194,400 - 10,800)}{3}\) .............................................. 61,200
   2008: \(\frac{($194,400 - 10,800)}{3} \times \frac{1}{2}\) ................................... 30,600

b. Units-of-production method:
   2005: 4,650 hours @ $8*.......................................................... $37,200
   2006: 7,500 hours @ $8 .......................................................... 60,000
   2007: 7,350 hours @ $8 .......................................................... 58,800
   2008: 3,450 hours @ $8 .......................................................... 27,600

   *($194,400 - 10,800) ÷ 22,950 hours = $8 per hour

   2005: \(\frac{($194,400 - 10,800)}{22,950}\) hours = $8 per hour

   2006: \(\frac{$194,400 - $64,800}{2/3}\) ........................................... 86,400
   2007: \(\frac{$194,400 - $64,800 - $86,400}{2/3}\) ................................ 28,800
   2008: \(\frac{$194,400 - $64,800 - $86,400 - $28,800 - $10,800}{2/3}\) 3,600

   *Book value should not be reduced below $10,800, the residual value.
Prob. 9–4A

1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation, End of Year</th>
<th>Book Value, End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>$36,000</td>
<td>$36,000</td>
<td>$124,000</td>
</tr>
<tr>
<td>2</td>
<td>36,000</td>
<td>72,000</td>
<td>88,000</td>
</tr>
<tr>
<td>3</td>
<td>36,000</td>
<td>108,000</td>
<td>52,000</td>
</tr>
<tr>
<td>4</td>
<td>36,000</td>
<td>144,000</td>
<td>16,000</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>$80,000</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>2</td>
<td>40,000</td>
<td>120,000</td>
<td>40,000</td>
</tr>
<tr>
<td>3</td>
<td>20,000</td>
<td>140,000</td>
<td>20,000</td>
</tr>
<tr>
<td>4</td>
<td>4,000</td>
<td>144,000</td>
<td>16,000</td>
</tr>
</tbody>
</table>

2. Book value of old equipment ................................................................. $ 20,000
   Boot given (cash and notes payable) ...................................................... 176,000
   Cost of new equipment ........................................................................... $ 196,000

   or

   Price of new equipment ........................................................................... $ 200,000
   Less unrecognized gain on exchange .......................................................... 4,000
   Cost of new equipment ........................................................................... $ 196,000

3. Accumulated Depreciation—Equipment .............................................. 140,000
   Equipment ............................................................................................... 196,000
     Equipment .............................................................................................. 160,000
     Cash ........................................................................................................ 16,000
     Notes Payable ......................................................................................... 160,000

4. Accumulated Depreciation—Equipment .............................................. 140,000
   Equipment ............................................................................................... 200,000
   Loss on Disposal of Fixed Assets ............................................................. 7,200
     Equipment .............................................................................................. 160,000
     Cash ........................................................................................................ 16,000
     Notes Payable ......................................................................................... 171,200
Prob. 9–5A

2005
Jan. 2 Delivery Equipment ...................................................... 37,000
    Cash ................................................................. 37,000

5 Depreciation Expense—Delivery Equipment ............ 2,000
    Accumulated Depreciation—Delivery Equipment  2,000

5 Delivery Equipment ...................................................... 5,000
    Cash ................................................................. 5,000

5 Accumulated Depreciation—Delivery Equipment .... 2,000
    Delivery Equipment................................................. 2,000

Apr. 7 Truck Repair Expense................................................ 125
    Cash ................................................................. 125

Dec. 31 Depreciation Expense—Delivery Equipment .......... 10,000
    Accumulated Depreciation—Delivery Equipment [25% \times ($36,000 – $2,000 + $5,000)].... 10,000

2006
Jan. 1 Delivery Equipment ...................................................... 80,000
    Cash ................................................................. 80,000

Mar. 13 Truck Repair Expense................................................ 180
    Cash ................................................................. 180
Prob. 9–5A  Concluded

2006
Apr. 30  Depreciation Expense—Delivery Equipment ....  2,500
         Accumulated Depreciation—Delivery Equipment [25% × ($36,000 – $9,000) × 1/3].  2,500
30  Accumulated Depreciation—Delivery Equipment ................................................. 12,250
    Cash ............................................................................................................. 24,500
    Loss on Disposal of Fixed Assets ................................................................... 3,250
    Delivery Equipment ....................................................................................... 40,000
Dec. 31  Depreciation Expense—Delivery Equipment ....  16,000
         Accumulated Depreciation—Delivery Equipment (20% × $80,000) ....................... 16,000

2007
July 1  Delivery Equipment ................................................................. 45,000
       Cash ........................................................................................................... 45,000
Oct. 2  Depreciation Expense—Delivery Equipment ....  9,600
       Accumulated Depreciation—Delivery Equipment [9/12 × 20% × ($80,000 – $16,000)]  9,600
2  Cash ............................................................................................................. 63,075
    Accumulated Depreciation—Delivery Equipment .............................................. 25,600
    Delivery Equipment ....................................................................................... 80,000
    Gain on Disposal of Fixed Assets ................................................................. 8,675
Dec. 31  Depreciation Expense—Delivery Equipment ....  4,500
         Accumulated Depreciation—Delivery Equipment (1/2 × 20% × $45,000) ............ 4,500
Prob. 9–6A

1. a. Goodwill is not amortized.
   b. $225,600 ÷ 8 years = $28,200; 1/2 of $28,200 = $14,100
   c. $820,000 ÷ 4,000,000 board feet = $0.205 per board foot; 550,000 board feet × $0.205 per board foot = $112,750

2. a. No entry for goodwill amortization.
   b. Amortization Expense—Patents .................. 14,100
      .............................................................. Patents 14,100
   c. Depletion Expense ..................................... 112,750
      ..................................................Accumulated Depletion 112,750
Prob. 9–1B

1. Land Other Item Land Improvements Building Accounts
   a. $ 2,500
   b. 190,000
   c. 13,750
   d. 4,800
   e. 10,200
   f. (5,000)*
   g. 29,700
   h. $ 6,600
   i. $ 3,500
   j. $12,500
   k. 7,000
   l. 75,000
   m. 1,600
   n. 30,000
   o. 8,500
   p. (500,000)*
   q. 750,000
   r. (4,000)*
   s. (550)*

2. $245,950 $28,000 $861,050

*Receipt

3. Since land used as a plant site does not lose its ability to provide services, it is not depreciated. However, land improvements do lose their ability to provide services as time passes and are therefore depreciated.
### Prob. 9–2B

#### Depreciation Expense

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$55,800</td>
<td>$93,750</td>
<td>$120,000</td>
</tr>
<tr>
<td>2006</td>
<td>55,800</td>
<td>45,000</td>
<td>40,000</td>
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<tr>
<td>2007</td>
<td>55,800</td>
<td>28,650</td>
<td>7,400</td>
</tr>
<tr>
<td>Total</td>
<td>$167,400</td>
<td>$167,400</td>
<td>$167,400</td>
</tr>
</tbody>
</table>

#### Calculations:

**Straight-line method:**

\[
\frac{($180,000 - $12,600)}{3} = $55,800 \text{ each year}
\]

**Units-of-production method:**

\[
\frac{($180,000 - $12,600)}{22,320 \text{ hours}} = $7.50 \text{ per hour}
\]

2005: 12,500 hours @ $7.50 = $93,750  
2006: 6,000 hours @ $7.50 = $45,000  
2007: 3,820 hours @ $7.50 = $28,650

**Declining-balance method:**

2005: $180,000 \times \frac{2}{3} = $120,000  
2006: ($180,000 - $120,000) \times \frac{2}{3} = $40,000  
2007: ($180,000 - $120,000 - $40,000 - $12,600*) = $7,400

*Book value should not be reduced below the residual value of $12,600.*
Prob. 9–3B

a. Straight-line method:
   2005: \[\frac{($174,000 - $5,700)}{3} \times \frac{1}{2}\] ........................................ $28,050
   2006: \(\frac{($174,000 - $5,700)}{3}\) ................................................... 56,100
   2007: \(\frac{($174,000 - $5,700)}{3}\) ................................................... 56,100
   2008: \[\frac{($174,000 - $5,700)}{3} \times \frac{1}{2}\] ........................................ 28,050

b. Units-of-production method:
   2005: 2,500 hours @ $12* .......................................................... $30,000
   2006: 5,500 hours @ $12 .......................................................... 66,000
   2007: 4,025 hours @ $12 .......................................................... 48,300
   2008: 2,000 hours @ $12 .......................................................... 24,000

   *(174,000 – 5,700) ÷ 14,025 hours = $12 per hour

c. Declining-balance method:
   2005: \(174,000 \times \frac{2}{3} \times \frac{1}{2}\) ......................................................... $58,000
   2006: \((174,000 – 58,000) \times \frac{2}{3}\) .................................................. 77,333
   2007: \((174,000 – 58,000 – 77,333) \times \frac{2}{3}\) ...................................... 25,778
   2008: \((174,000 – 58,000 – 77,333 – 25,778 – 5,700)*)..... 7,189

   *Book value should not be reduced below $5,700, the residual value.
Prob. 9–4B

1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation, End of Year</th>
<th>Book Value, End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>$18,400</td>
<td>$18,400</td>
<td>$81,600</td>
</tr>
<tr>
<td>2</td>
<td>18,400</td>
<td>36,800</td>
<td>63,200</td>
</tr>
<tr>
<td>3</td>
<td>18,400</td>
<td>55,200</td>
<td>44,800</td>
</tr>
<tr>
<td>4</td>
<td>18,400</td>
<td>73,600</td>
<td>26,400</td>
</tr>
<tr>
<td>5</td>
<td>18,400</td>
<td>92,000</td>
<td>8,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>2</td>
<td>24,000</td>
<td>64,000</td>
<td>36,000</td>
</tr>
<tr>
<td>3</td>
<td>14,400</td>
<td>78,400</td>
<td>21,600</td>
</tr>
<tr>
<td>4</td>
<td>8,640</td>
<td>87,040</td>
<td>12,960</td>
</tr>
<tr>
<td>5</td>
<td>4,960</td>
<td>92,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

2. Book value of old equipment ............................................................... $ 12,960
   Boot given (cash and notes payable) .................................................. 104,000
   Cost of new equipment ................................................................. $116,960

   or

   Price of new equipment ............................................................... $120,000
   Less unrecognized gain on exchange .............................................. 3,040
   Cost of new equipment ................................................................. $116,960

3. Accumulated Depreciation—Equipment .............................................. 87,040
   Equipment ......................................................................................... 116,960
   Equipment ......................................................................................... 100,000
   Cash .................................................................................................. 24,000
   Notes Payable .................................................................................. 80,000

4. Accumulated Depreciation—Equipment .............................................. 87,040
   Equipment ......................................................................................... 120,000
   Loss on Disposal of Fixed Assets .................................................. 960
   Equipment ......................................................................................... 100,000
   Cash .................................................................................................. 24,000
   Notes Payable .................................................................................. 84,000
Prob. 9–5B

2005
Jan.  3 Delivery Equipment ...................................................... 26,500
      Cash ............................................................................ 26,500
5 Depreciation Expense—Delivery Equipment .......... 500
      Accumulated Depreciation—
      Delivery Equipment....................................................... 500
5 Delivery Equipment ...................................................... 4,000
      Cash ............................................................................ 4,000

Aug.  16 Truck Repair Expense.................................................. 285
      Cash ............................................................................ 285

Dec.  31 Depreciation Expense—Delivery Equipment ........ 15,000
      Accumulated Depreciation—Delivery
      Equipment [50% × ($26,500 – $500 + $4,000)]........... 15,000

2006
Jan.  1 Delivery Equipment ...................................................... 65,000
      Cash ............................................................................ 65,000

June  30 Depreciation Expense—Delivery Equipment .......... 3,750
      Accumulated Depreciation—Delivery
      Equipment [50% × ($30,000 – $15,000) × 6/12]........... 3,750
Prob. 9–5B Concluded

2006
June 30  Accumulated Depreciation—Delivery Equipment .... 18,750
Cash................................................................. 12,000
Delivery Equipment........................................... 30,500
Gain on Disposal of Fixed Assets ................. 250

Aug. 10  Truck Repair Expense................................. 175
Cash................................................................. 175

Dec. 31  Depreciation Expense—Delivery Equipment ........ 26,000
Accumulated Depreciation—Delivery Equipment (40% × $65,000).......................... 26,000

2007
July 1  Delivery Equipment ..................................... 84,000
Cash................................................................. 84,000

Oct. 1  Depreciation Expense—Delivery Equipment ........ 11,700
Accumulated Depreciation—Delivery Equipment [9/12 × 40% × ($65,000 – $26,000)]..... 11,700
1 Cash........................................................................ 26,750
Accumulated Depreciation—Delivery Equipment .... 37,700
Loss on Disposal of Fixed Assets ..................... 550
Delivery Equipment............................................. 65,000

Dec. 31  Depreciation Expense—Delivery Equipment ........ 10,500
Accumulated Depreciation—Delivery Equipment (1/2 × 25% × $84,000)...................... 10,500
Prob. 9–6B

1. a. $720,000 \div 2,250,000$ board feet = $0.32$ per board foot; $600,000$ board feet \( \times \) $0.32$ per board foot = $192,000$

b. Goodwill is not amortized.

c. $420,000 \div 10$ years = $42,000$; $1/4$ of $42,000$ = $10,500$

2. a. Depletion Expense ............................... 192,000

...............................Accumulated Depletion 192,000

b. No entry for goodwill amortization.

c. Amortization Expense—Patents ....................... 10,500

............................................................... Patents 10,500
SPECIAL ACTIVITIES

Activity 9–1

It is considered unprofessional for employees to use company assets for personal reasons, because such use reduces the useful life of the assets for normal business purposes. Thus, it is unethical for Lizzie Paulk to use Insignia Co.'s computers and laser printers to service her part-time accounting business, even on an after-hours basis. In addition, it is improper for Lizzie’s clients to call her during regular working hours. Such calls may interrupt or interfere with Lizzie’s ability to carry out her assigned duties for Insignia Co.

Activity 9–2

You should explain to Hal and Jody that it is acceptable to maintain two sets of records for tax and financial reporting purposes. This can happen when a company uses one method for financial statement purposes, such as straight-line depreciation, and another method for tax purposes, such as MACRS depreciation. This should not be surprising, since the methods for taxes and financial statements are established by two different groups with different objectives. That is, tax laws and related accounting methods are established by Congress. The Internal Revenue Service then applies the laws and, in some cases, issues interpretations of the law and Congressional intent. The primary objective of the tax laws is to generate revenue in an equitable manner for government use. Generally accepted accounting principles, on the other hand, are established primarily by the Financial Accounting Standards Board. The objective of generally accepted accounting principles is the preparation and reporting of true economic conditions and results of operations of business entities.

You might note, however, that companies are required in their tax returns to reconcile differences in accounting methods. For example, income reported on the company’s financial statements must be reconciled with taxable income.

Finally, you might also indicate to Hal and Jody that even generally accepted accounting principles allow for alternative methods of accounting for the same transactions or economic events. For example, a company could use straight-line depreciation for some assets and double-declining-balance depreciation for other assets.
Activity 9–3

1. a. Straight-line method:

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Calculation</th>
<th>Depreciation Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>($120,000 / 5) * 1/2</td>
<td>$12,000</td>
</tr>
<tr>
<td>2005</td>
<td>($120,000 / 5)</td>
<td>24,000</td>
</tr>
<tr>
<td>2006</td>
<td>($120,000 / 5)</td>
<td>24,000</td>
</tr>
<tr>
<td>2007</td>
<td>($120,000 / 5)</td>
<td>24,000</td>
</tr>
<tr>
<td>2008</td>
<td>($120,000 / 5)</td>
<td>24,000</td>
</tr>
<tr>
<td>2009</td>
<td>($120,000 / 5) * 1/2</td>
<td>12,000</td>
</tr>
</tbody>
</table>

b. MACRS:

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Calculation</th>
<th>Depreciation Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>($120,000 * 20%)</td>
<td>$24,000</td>
</tr>
<tr>
<td>2005</td>
<td>($120,000 * 32%)</td>
<td>38,400</td>
</tr>
<tr>
<td>2006</td>
<td>($120,000 * 19.2%)</td>
<td>23,040</td>
</tr>
<tr>
<td>2007</td>
<td>($120,000 * 11.5%)</td>
<td>13,800</td>
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<tr>
<td>2008</td>
<td>($120,000 * 11.5%)</td>
<td>13,800</td>
</tr>
<tr>
<td>2009</td>
<td>($120,000 * 5.8%)</td>
<td>6,960</td>
</tr>
</tbody>
</table>
Activity 9–3  Continued

2.

a. Straight-line method

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income before depreciation</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>12,000</td>
<td>24,000</td>
<td>24,000</td>
<td>24,000</td>
<td>24,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Income before income tax</td>
<td>$188,000</td>
<td>$176,000</td>
<td>$176,000</td>
<td>$176,000</td>
<td>$176,000</td>
<td>$188,000</td>
</tr>
<tr>
<td>Income tax</td>
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<td>52,800</td>
<td>52,800</td>
<td>52,800</td>
<td>52,800</td>
<td>56,400</td>
</tr>
<tr>
<td>Net income</td>
<td>$131,600</td>
<td>$123,200</td>
<td>$123,200</td>
<td>$123,200</td>
<td>$123,200</td>
<td>$131,600</td>
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</table>

b. MACRS

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income before depreciation</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>24,000</td>
<td>38,400</td>
<td>23,040</td>
<td>13,800</td>
<td>13,800</td>
<td>6,960</td>
</tr>
<tr>
<td>Income before income tax</td>
<td>$176,000</td>
<td>$161,600</td>
<td>$176,960</td>
<td>$186,200</td>
<td>$186,200</td>
<td>$193,040</td>
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<tr>
<td>Income tax</td>
<td>52,800</td>
<td>48,480</td>
<td>53,088</td>
<td>55,860</td>
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<tr>
<td>Net income</td>
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<td>$123,872</td>
<td>$130,340</td>
<td>$130,340</td>
<td>$135,128</td>
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</tbody>
</table>
Activity 9–3  Concluded

3. For financial reporting purposes, Sharon should select the method that provides the net income figure that best represents the results of operations. *(Note to Instructors: The concept of matching revenues and expenses is discussed in Chapter 3.)* However, for income tax purposes, Sharon should consider selecting the method that will minimize taxes. Based upon the analyses in (2), both methods of depreciation will yield the same total amount of taxes over the useful life of the equipment. MACRS results in fewer taxes paid in the early years of useful life and more in the later years. For example, in 2004 the MACRS amount is less than the straight-line amount. Five Points Co. can invest such differences in the early years and earn income.

In some situations, it may be more beneficial for a taxpayer not to choose MACRS. These situations usually occur when a taxpayer is expected to be subject to a low tax rate in the early years of use of an asset and a higher tax rate in the later years of the asset's useful life. In this case, the taxpayer may be better off to defer the larger deductions to offset the higher tax rate.

Activity 9–4

*Note to Instructors:* The purpose of this activity is to familiarize students with the differences in cost and other factors in leasing and buying a business vehicle.

Activity 9–5

*Note to Instructors:* The purpose of this activity is to familiarize students with the procedures involved in acquiring a patent, a copyright, and a trademark.