**EXERCISES**

**Exercise 8-1 (15 minutes)**

|  |  |  |
| --- | --- | --- |
| **Invoice price of machine** | | **$ 12,500** |
| **Less discount (.02 x $12,500)** | | **(250)** |
| **Net purchase price** | | **12,250** |
| **Freight charges (transportation-in)** | | **360** |
| **Mounting and power connections** | | **895** |
| **Assembly** | | **475** |
| **Materials used in adjusting** | | **40** |
| **Total cost to be recorded** | **$ 14,020** |

**Note: The $180 repair charge is an expense because it is not a normal and reasonable expenditure necessary to get the asset in place and ready for its intended use.**

**Exercise 8-2 (15 minutes)**

**Cost of land**

|  |  |  |
| --- | --- | --- |
| **Purchase price for land** | | **$ 280,000** |
| **Purchase price for old building** | | **110,000** |
| **Demolition costs for old building** | | **33,500** |
| **Costs to fill and level lot** | | **47,000** |
| **Total cost of land** | **$ 470,500** |

**Cost of new building and land improvements**

|  |  |
| --- | --- |
| **Cost of new building** | **$1,452,200** |
| **Cost of land improvements** | | **87,800** |
| **Total construction costs** | | **$1,540,000** |

**Journal entry**

|  |  |  |  |
| --- | --- | --- | --- |
| Land | | **470,500** |  |
| **Land Improvements** | | **87,800** |  |
| **Building** | **1,452,200** |  |
| **Cash** |  | **2,010,500** |
| ***Record costs of plant assets.*** |  |  |

**Exercise 8-3 (20 minutes)**

|  |  |  |
| --- | --- | --- |
| **Purchase price** | | **$375,280** |
| **Closing costs** | | **20,100** |
| **Total cost of acquisition** | **$395,380** | |

**Allocation of total cost**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Appraised  Value** | **Percent  of Total** | **Applying %**  **to Cost** | **Apportioned Cost** |
| **Land** | **$157,040** | **40%** | **$395,380 x .40** | **$158,152** | |
| Land improvements | **58,890** | **15** | **$395,380 x .15** | **59,307** | |
| **Building** | **176,670** | **45** | **$395,380 x .45** | **177,921** | |
| **Totals** | **$392,600** | **100%** |  | **$395,380** | |
|  |  |  |  |  | |

**Journal entry**

|  |  |  |
| --- | --- | --- |
| **Land** | **158,152** |  |
| **Land Improvements** | **59,307** |  |
| **Building** | **177,921** |  |
| **Cash** |  | **395,380** |
| ***Record costs of lump-sum purchase.*** |  |  |

**Exercise 8-4 (10 minutes)**

**Straight-line**

**($43,500 - $5,000) / 10 years = $3,850**

**Exercise 8-5 (10 minutes)**

**Units-of-production**

**Depreciation per unit = ($43,500 - $5,000) / 385,000 units = $0.10 per unit**

**For 32,500 units in second year: Depreciation = 32,500 x $0.10 = $3,250**

**Exercise 8-6 (15 minutes)**

**Double-declining-balance**

**Double-declining-balance rate = (100% / 10 years) x 2 = 20% per year**

**First year’s depreciation = $43,500 x 20% = $8,700**

**Book value at beginning of second year = $43,500 - $8,700 = $34,800**

**Second year’s depreciation = $34,800 x 20% = $6,960**

**Exercise 8-7 (15 minutes)**

**Straight-line depreciation: ($154,000 - $25,000) / 4 years = $32,250 per year**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Annual Depreciation** | | **Year-End Book Value** |
| **2018** | | **$ 32,250** | **$121,750** |
| **2019** | | **32,250** | **89,500** |
| **2020** | | **32,250** | **57,250** |
| **2021** | | **32,250** | **25,000** |
| **Total** | | **$129,000** |  |

**Exercise 8-8 (20 minutes)**

**Double-declining-balance depreciation**

**Depreciation rate: 100% / 4 years = 25% x 2 = 50%**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | | **Beginning-Year  Book Value** | | **Depreciation**  **Rate** | **Annual Depreciation** | **Year-End Book Value** |
| **2018** | | | **$154,000** | **50%** | **$ 77,000** | **$77,000** |
| **2019** | | | **77,000** | **50** | **38,500** | **38,500** |
| **2020** | | | **38,500** | **50** | **13,500\*** | **25,000** |
| **2021** | | | **25,000** | **--** | **--** | **25,000** |
| **Total** | |  |  | **$129,000** |  |

\* Do not depreciate more than $13,500 in the third year since the salvage value is not subject to depreciation.

**Exercise 8-9 (30 minutes)**

**Straight-line depreciation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Income before Depreciation** | | **Depreciation Expense\*** | | **Net Income** | |
| **Year 1** | **$ 88,500** | **$ 38,960** | | **$ 49,540** | |  |
| **Year 2** | **88,500** | **38,960** | | **49,540** | |  |
| **Year 3** | **88,500** | **38,960** | | **49,540** | |  |
| **Year 4** | **88,500** | **38,960** | | **49,540** | |  |
| **Year 5** | **88,500** | **38,960** | | **49,540** | |  |
| **Totals** | **$442,500** | **$194,800** | | **$247,700** | |  |

**\*($238,400 - $43,600) / 5 years = $38,960**

**Exercise 8-10 (30 minutes)**

**Double-declining-balance depreciation**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Income before Depreciation** | | **Depreciation Expense\*** | | **Net Income** | | |
| **Year 1** | **$ 88,500** | **$ 95,360** | | **$ (6,860)** | | |  | |
| **Year 2** | **88,500** | **57,216** | | **31,284** | |  | |
| **Year 3** | **88,500** | **34,330** | | **54,170** | |  | |
| **Year 4** | **88,500** | **7,894** | | **80,606** | |  | |
| **Year 5** | **88,500** | **0** | | **88,500** | |  | |
| **Totals** | **$442,500** | **$194,800** | | **$247,700** | |  | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supporting calculations for depreciation expense** | | | | | | | | | |
| **\*Note: (100% / 5 years) x 2 = 40% depreciation rate** | | | | | | | | | |
|  | **Beginning Book**  **Value** | **Annual Depreciation (40% of  Book Value)** | | **Accumulated Depreciation at the End of the Year** | | **Ending Book Value ($238,400 Cost Less Accumulated Depreciation)** | | |
| **Year 1** | **$238,400** | **$ 95,360** | | **$ 95,360** | | **$143,040** | | |
| **Year 2** | **143,040** | **57,216** | | **152,576** | | **85,824** | | |
| **Year 3** | **85,824** | **34,330\*\*** | | **186,906** | | **51,494** | | |
| **Year 4** | **51,494** | **7,894\*\*\*** | | **194,800** | | **43,600** | | |
| **Year 5** | **43,600** | **0** | | **194,800** | | **43,600** | | |
| **Total** |  | **$194,800** | |  | |  | | |
|  |  | |  | |  | |  | | |
| **\*\* rounded**  **\*\*\* Must not use $20,598; instead take only enough depreciation in Year 4 to reduce book value to the $43,600 salvage value.** | | | | | | | |

**Exercise 8-11 (10 minutes)**

**Straight-line depreciation for 2017**

**[($280,000 - $40,000) / 5 years] x 9/12 = $36,000**

**Straight-line depreciation for 2018**

**($280,000 - $40,000) / 5 years = $48,000**

**Exercise 8-12 (15 minutes)**

**Double-declining-balance depreciation for 2017 and 2018:**

## Rate = (100% / 5 years) x 2 = 40%

|  |  |
| --- | --- |
| **Depreciation for 2017 ($280,000 x 40% x 9/12)** | **$ 84,000** |
| **Book value at January 1, 2018 ($280,000 - $84,000)** | **$196,000** |
| **Depreciation for 2018 ($196,000 x 40%)** | **$ 78,400** |
|  |  |
| **Alternate calculation** |  |
| **2017 depreciation ($280,000 x 40% x 9/12)** | **$ 84,000** |
| **2018 depreciation** |  |
| **$280,000 x 40% x 3/12** | **$ 28,000** |
| **($280,000 - $84,000 - $28,000) x 40% x 9/12** | **50,400** |
| **Total 2018 depreciation** | **$ 78,400** |

**Exercise 8-13 (15 minutes)**

|  |  |  |
| --- | --- | --- |
| **1.** | **Original cost of machine** | **$ 23,860** |
|  | **Less two years' accumulated depreciation** |  |
|  | **[($23,860 - $2,400) / 4 years] x 2 years** | **(10,730)** |
|  | **Book value at end of second year** | **$ 13,130** |
|  |  |  |
| **2.** | **Book value at end of second year** | **$ 13,130** |
|  | **Less revised salvage value** | **(2,000)** |
|  | **Remaining depreciable cost** | **$ 11,130** |

**Revised annual depreciation = $11,130 / 3 years = $3,710**

**Exercise 8-14 (15 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** | **Equipment** | **22,000** |  |
|  | **Cash** |  | **22,000** |
|  | ***Record betterment.*** |  |  |
|  |  |  |  |
| **2.** | **Repairs Expense** | **6,250** |  |
|  | **Cash** |  | **6,250** |
|  | ***Record ordinary repairs.*** |  |  |
|  |  |  |  |
| **3.** | Equipment | **14,870** |  |
|  | **Cash** |  | **14,870** |
|  | ***Record extraordinary repairs.*** |  |  |

**Exercise 8-15 (25 minutes)**

**1. Annual depreciation = $572,000 / 20 years = $28,600 per year**

**Age of the building = Accumulated depreciation / Annual depreciation**

**= $429,000 / $28,600 = 15 years**

**2. Entry to record the extraordinary repairs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | Building | **68,350** |  |
|  | | **Cash** |  | **68,350** |
|  | | ***Record extraordinary repairs.*** |  |  |
|  | |  |  |  |
| **3.** | | **Cost of building** |  |  |
|  | | **Before repairs** | **$572,000** |  |
|  | | **Add cost of repairs** | **68,350** | **$640,350** |
|  | | **Less accumulated depreciation** |  | **429,000** |
|  | **Revised book value of building** |  | **$211,350** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **4.** | | **Revised book value of building (part 3)** |  | **$211,350** |
|  | | **New estimate of useful life (20 - 15 + 5)** |  | **10 years** |
|  | **Revised annual depreciation** |  | **$ 21,135** |

**Journal entry**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | **Depreciation Expense** | **21,135** |  |
|  | | **Accumulated Depreciation–Building** |  | **21,135** |
|  | ***Record depreciation.*** |  |  |

**Exercise 8-16 (20 minutes)**

**Note: Book value of milling machine = $250,000 - $182,000 = $68,000**

**1. Disposed at no value**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 3** | | **Loss on Disposal of Milling Machine** | **68,000** |  |
|  | **Accumulated Depreciation—Milling Machine** | **182,000** |  | |
|  | **Milling Machine** |  | **250,000** | |
|  | ***Record disposal of milling machine.*** |  |  | |

**2. Sold for $35,000 cash**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 3** | | **Cash** | **35,000** |  |
|  | | **Loss on Sale of Milling Machine** | **33,000** |  |
|  | **Accumulated Depreciation—Milling Machine** | **182,000** |  | |
|  | **Milling Machine** |  | **250,000** | |
|  | ***Record cash sale of milling machine.*** |  |  | |

**3. Sold for $68,000 cash**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 3** | | **Cash** | **68,000** |  |
|  | **Accumulated Depreciation—Milling Machine** | **182,000** |  | |
|  | **Milling Machine** |  | **250,000** | |
|  | ***Record cash sale of milling machine.*** |  |  | |

**4. Sold for $80,000 cash**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 3** | | **Cash** | **80,000** |  |
|  | | **Accumulated Depreciation—Milling Machine** | **182,000** |  |
|  | **Gain on Sale of Milling Machine** |  | **12,000** | |
|  | **Milling Machine** |  | **250,000** | |
|  | ***Record cash sale of milling machine.*** |  |  | |

Exercise 8-17 (25 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2022** | |  |  |  |
| **July 1** | | **Depreciation Expense** | **7,500** |  |
|  | | **Accumulated Depreciation--Machinery** |  | **7,500** |
|  | ***Record one-half year depreciation.\**** |  |  |

**\*Annual depreciation = $105,000 / 7 years = $15,000**

**Depreciation for 6 months in 2022 = $15,000 x 6/12 = $7,500**

**1. Sold for $45,500 cash**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **July 1** | | **Cash** | **45,500** | |  |
|  | | **Accumulated Depreciation—Machinery** | **67,500** | |  |
|  | **Gain on Sale of Machinery** |  | | **8,000** |
|  | **Machinery** |  | | **105,000** |
|  | | ***Record sale of machinery.\**** |  |  | |

**\*Total accumulated depreciation at date of disposal:**

**Four years 2018-2021 (4 x $15,000) $60,000**

**Partial year 2022 (6/12 x $15,000) 7,500**

**Total accumulated depreciation $67,500**

**Book value of machinery = $105,000 - $67,500 = $37,500**

**2. Destroyed by fire with $25,000 cash insurance settlement**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **July 1** | | **Cash** | **25,000** | |  |
|  | | **Loss from Fire** | **12,500** | |  |
|  | **Accumulated Depreciation—Machinery** | **67,500** | |  |
|  | **Machinery** |  | | **105,000** |
|  | | ***Record disposal of machinery from fire.*** |  |  | |

Exercise 8-18 (10 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dec. 31** | | **Depletion Expense—Mineral Deposit** | **405,528** |  |
|  | **Accumulated Depletion—Mineral Deposit** |  | **405,528** |
|  | ***Record depletion [$3,721,000/1,525,000 tons = $2.44 per ton; 166,200 tons x $2.44 = $405,528].*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Depreciation Expense—Machinery** | **23,268** |  |
|  | **Accumulated Depreciation—Machinery** |  | **23,268** |
|  | ***Record depreciation [$213,500/1,525,000 tons= $0.14 per ton; 166,200 tons x $0.14 = $23,268].*** |  |  |

**Exercise 8-19 (10 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 1** | | **Copyright** | **418,000** |  |
|  | **Cash** |  | **418,00000** |
|  | ***Record purchase of copyright.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Amortization Expense—Copyright** | **41,800** |  |
|  | **Accumulated Amortization—Copyright** |  | **41,800** |
|  | ***Record amortization of copyright   [$418,000 / 10 years].*** |  |  |

**Exercise 8-20 (10 minutes)**

**1. Goodwill = $2,500,000 - $1,800,000 = $700,000**

**2. Goodwill is not amortized. Instead, Robinson must test the value of the Goodwill each year, and if the value is impaired, it must be written down.**

**3. Goodwill is only recorded when it is purchased. Goodwill is not recorded by the company that has created it.**

**Exercise 8-21 (15 minutes)**

**1. $9,972 million cash for property and equipment**

**2. $5,267 million for depreciation and impairment**

**3. $31,165 million cash used in investing activities**

**Exercise 8-22 (15 minutes)**

**Total asset turnover for 2017 = = 3.36**

**$5,856,480**

**($1,800,000 + $1,686,000)/2**

**Total asset turnover for 2018 = = 4.59**

**$8,679,690**

**($1,982,000 + $1,800,000)/2**

***Analysis comments*. Based on these calculations, Lok turned its assets over 1.23 (4.59 – 3.36) more times in 2018 than in 2017. This increase indicates that the company became more efficient in using its assets. Moreover, it has improved its efficiency in using assets relative to its competitors who average 3.0. Together, these results based on total asset turnover indicate that Lok has markedly improved its performance and is currently superior to its competitors.**

**Exercise 8-23A (15 minutes)**

**1. Book value of the old tractor ($96,000 - $52,500) $ 43,500**

**2. Loss on the exchange**

**Book value - Trade-in allowance ($43,500 - $29,000) $ 14,500**

**3. Debit to new Tractor account**

**Cash paid + Trade-in allowance ($83,000 + $29,000) $112,000**

**Alternatively, answers can be taken from the following journal entry:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Tractor (new)\*** | **112,000** |  |
|  | **Loss on Exchange of Assets** | **14,500** |  |
|  | **Accumulated Depreciation–Tractor** | **52,500** |  |
|  | **Tractor (old)** |  | **96,000** |
|  | **Cash** |  | **83,000** |
|  | ***Record asset exchange. \*($29,000 + $83,000)*** |  |  |

**Exercise 8-24A (25 minutes)**

**Note: Book value of Machine equals $44,000 - $24,625 = $19,375**

**1. Sold for $18,250 cash**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 2** | | **Cash** | **18,250** |  |
|  | | **Loss on Sale of Machinery** | **1,125** |  |
|  | **Accumulated Depreciation—Machinery (old)** | **24,625** |  | |
|  | **Machinery (old)** |  | **44,000** | |
|  | ***Record cash sale of machine.*** |  |  | |

1. $25,000 trade-in allowance exceeds book value (yielding a gain)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jan. 2** | | **Machinery (new)** | **60,200** | | |  |
|  | | **Accumulated Depreciation—Machinery (old)** | **24,625** | | |  |
|  | **Gain on Exchange of Machinery** |  | | | **5,625** |
|  | **Machinery (old)** |  | | | **44,000** |
|  | **Cash\*** |  | | | **35,200** |
|  | | ***Record asset exchange. \*($60,200 - $25,000)*** | |  |  | |

3. $15,000 trade-in allowance is less than book value (yielding a loss)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jan. 2** | | **Machinery (new)** | **60,200** | | |  |
|  | | **Loss on Exchange of Machinery** | **4,375** | | |  |
|  | **Accumulated Depreciation—Machinery (old)** | **24,625** | | |  |
|  | **Machinery (old)** |  | | | **44,000** |
|  | **Cash\*** |  | | | **45,200** |
|  | | ***Record asset exchange. \*($60,200 - $15,000)*** | |  |  | |

**Exercise 8-25 (20 minutes)**

**(Amounts for this exercise are in euros millions)**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** | **Depreciation expense** | **7,509** |  |
|  | **Accumulated depreciation—Property, plant and equipment** |  | **7,509** |
|  | ***Record depreciation on property, plant and equipment.*** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **2.** | **Property, plant and equipment** | **11,560** |  |
|  | **Cash** |  | **11,560** |
|  | ***Record betterments (improvements) on property, plant and equipment.*** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **3.** | **Cash** | **720** |  |
|  | **Loss on disposal of property, plant and equipment** | **515** |  |
|  | **Accumulated Depreciation—Property, plant and equipment** | **1,195** |  |
|  | **Property, plant and equipment** |  | **2,430** |
|  | ***Record asset disposals.*** |  |  |

**4. Volkswagen’s impairments would *decrease* its property, plant and equipment account by €143.**

**Exercise 8-26 (15 minutes)**

|  |  |  |
| --- | --- | --- |
| **1.** | **Original cost of solar panel** | **$ 45,000** |
|  | **Less salvage value** | **(5,000)** |
|  | **Amount to be depreciated** | **$ 40,000** |
|  | **Depreciation for each of first two years** |  |
|  | **($45,000 - $5,000) / 5 years** | **$ 8,000** |
|  |  |  |
| **2.** | **Original cost of solar panel** | **$ 45,000** |
|  | **Less two years' accumulated depreciation** |  |
|  | **[($45,000 - $5,000) / 5 years] x 2 years** | **(16,000)** |
|  | **Book value at end of second year** | **$ 29,000** |
|  |  |  |
| **3.** | **Book value at end of second year** | **$ 29,000** |
|  | **Less revised salvage value** | **(1,000)** |
|  | **Remaining depreciable cost** | **$ 28,000** |

|  |  |  |
| --- | --- | --- |
|  | **Revised annual depreciation ($28,000 / 4 years)** | **$ 7,000** |