

SOLUTIONS TO EXERCISES

EXERCISE 11-1 (15–20 minutes)

- (a) Straight-line method depreciation for each of Years 1 through 3 =

$$\frac{\$469,000 - \$40,000}{12} = \underline{\$35,750}$$

- (b) Sum-of-the-Years'-Digits = $\frac{12 \times 13}{2} = 78$

$$12/78 \times (\$469,000 - \$40,000) = \underline{\$66,000} \quad \text{depreciation Year 1}$$

$$11/78 \times (\$469,000 - \$40,000) = \underline{\$60,500} \quad \text{depreciation Year 2}$$

$$10/78 \times (\$469,000 - \$40,000) = \underline{\$55,000} \quad \text{depreciation Year 3}$$

- (c) Double-Declining Balance method depreciation rate. $\frac{100\%}{12} \times 2 = 16.67\%$

$$\$469,000 \times 16.67\% = \underline{\$78,182} \quad \text{depreciation Year 1}$$

$$(\$469,000 - \$78,182) \times 16.67\% = \underline{\$65,149} \quad \text{depreciation Year 2}$$

$$(\$469,000 - \$78,182 - \$65,149) \times 16.67\% = \underline{\$54,289} \quad \text{depreciation Year 3}$$

EXERCISE 11-2 (20–25 minutes)

- (a) If there is any salvage value and the amount is unknown (as is the case here), the cost would have to be determined by looking at the data for the double-declining balance method.

$$\frac{100\%}{5} = 20\%; 20\% \times 2 = 40\%$$

$$\text{Cost} \times 40\% = \$20,000$$

$$\$20,000 \div .40 = \underline{\$50,000} \quad \text{Cost of asset}$$

EXERCISE 11-2 (Continued)

- (b) \$50,000 cost [from (a)] – \$45,000 total depreciation = \$5,000 salvage value.
- (c) The highest charge to income for Year 1 will be yielded by the double-declining balance method.
- (d) The highest charge to income for Year 4 will be yielded by the straight-line method.
- (e) The method that produces the highest book value at the end of Year 3 would be the method that yields the lowest accumulated depreciation at the end of Year 3, which is the straight-line method.

Computations:

St.-line = \$50,000 – (\$9,000 + \$9,000 + \$9,000) = \$23,000 book value, end of Year 3.

S.Y.D. = \$50,000 – (\$15,000 + \$12,000 + \$9,000) = \$14,000 book value, end of Year 3.

D.D.B. = \$50,000 – (\$20,000 + \$12,000 + \$7,200) = \$10,800 book value, end of Year 3.

- (f) The method that will yield the highest gain (or lowest loss) if the asset is sold at the end of Year 3 is the method which will yield the lowest book value at the end of Year 3, which is the double-declining balance method in this case.

EXERCISE 11-3 (15–20 minutes)

(a)
$$\frac{20(20+1)}{2} = 210$$

$3/4 \times 20/210 \times (\$711,000 - \$60,000) = \underline{\$46,500}$ for 2007

	$1/4 \times 20/210 \times (\$711,000 - \$60,000)$	=	\$15,500	
+	$3/4 \times 19/210 \times (\$711,000 - \$60,000)$	=	<u>44,175</u>	
			<u>\$59,675</u>	for 2008

EXERCISE 11-5 (20–25 minutes)

(a)
$$\frac{(\$117,900 - \$12,900)}{5} = \$21,000/\text{yr.} = \$21,000 \times 5/12 = \underline{\$8,750}$$

2007 Depreciation—Straight line = \$8,750

(b)
$$\frac{(\$117,900 - \$12,900)}{21,000} = \$5.00/\text{hr.}$$

2007 Depreciation—Machine Usage = 800 X \$5.00 = \$4,000

Machine	Year	Total	Allocated to	
			2007	2008
	1	5/15 X \$105,000 = \$35,000	\$14,583*	\$20,417**
	2	4/15 X \$105,000 = \$28,000		11,667***
			<u>\$14,583</u>	<u>\$32,084</u>

* \$35,000 X 5/12 = \$14,583

** \$35,000 X 7/12 = \$20,417

*** \$28,000 X 5/12 = \$11,667

2008 Depreciation—Sum-of-the-Years'-Digits = \$32,084

(d) **2007 40% X (\$117,900) X 5/12 = \$19,650**

2008 40% X (\$117,900 – \$19,650) = \$39,300

OR

1st full year (40% X \$117,900) = \$47,160

2nd full year [40% X (\$117,900 – \$47,160)] = \$28,296

2007 Depreciation = 5/12 X \$47,160 = \$19,650

2008 Depreciation = 7/12 X \$47,160 = \$27,510

5/12 X \$28,296 = 11,790

\$39,300

EXERCISE 11-19 (15–20 minutes)

(a) Depreciation Expense: $\frac{\$84,000}{30 \text{ years}} = \$2,800 \text{ per year}$

Cost of Timber Sold: $\$1,400 - \$400 = \$1,000$

$\$1,000 \times 9,000 \text{ acres} = \$9,000,000 \text{ of value of timber}$

$(\$9,000,000 \div 3,500,000 \text{ bd. ft.}) \times 700,000 \text{ bd. ft.} = \$1,800,000$

(b) **Cost of Timber Sold: $\$9,000,000 - \$1,800,000 = \$7,200,000$**

$\$7,200,000 + \$100,000 = \$7,300,000$

$(\$7,300,000 \div 5,000,000 \text{ bd. ft.}) \times 900,000 \text{ bd. ft.} = \$1,314,000$

Note: The spraying costs as well as the costs to maintain the fire lanes and roads are expensed each period and are not part of the depletion base.

EXERCISE 11-20 (10–15 minutes)

Cost per barrel of oil:

Initial payment = $\frac{\$500,000}{250,000} = \2.00

Rental = $\frac{\$31,500}{18,000} = 1.75$

Premium, 5% of \$55 = 2.75

Reconditioning of land = $\frac{\$30,000}{250,000} = \underline{\underline{.12}}$

Total cost per barrel \$6.62