

Solutions to Problem Set #5
15.501/516: Financial and Managerial Accounting

1. a. Under straight-line Depreciation, the yearly expense will be
 (Acquisition Cost – Salvage Value)/ Estimated Useful Life (in years).
 Acquisition cost = \$4,000 + \$9,000 + \$400 + \$600 = \$14,000
 Salvage Value = \$2,000
 Est. UL = 6 years, or 24,000 hours
 So annual SL Depreciation = $(14,000 - 2,000) / 6 = \$2,000$
- b. Under the activity method, depreciation will be charged by hour of machine usage using the following formula $(14,000 - 2,000) / 24,000 \text{ hrs} = \$.50 / \text{hour}$
 Hence, depreciation expense for the first three years will be:
 Year 1: 5,000 hours $\times \$.50 / \text{hr} = \$2,500$
 Year 2: 4,500 hours $\times \$.50 / \text{hr} = \$2,250$
 Year 3: 4,000 hours $\times \$.50 / \text{hr} = \$2,000$
- c. Book Value at start of 2000 = $\$14,000 - (3 * \$2,000) = \$8,000$
 The improvement increases the Book Value to $\$8,000 + \$4,000 = \$12,000$
 The amount to be depreciated over the remaining life is $\$12,000 - \$2,000 = \$10,000$
 The remaining useful life is $8 - 3 = 5$.
- Hence, the depreciation expense for 2002 will still be $\$2,000 = \$10,000 / 5 \text{ years}$.
- d. Accumulated Depreciation at the end of 2005 will be $7 \times \$2,000$ or \$14,000
 The Acquisition cost was $\$14,000 + 4,000 = \$18,000$, so the Book Value is \$4,000.
 Since the machine is sold for only \$1,000, there is a loss of \$3,000.
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|------|-------------|---|------------|---|----------------------|---|----------------------|
| BSE: | <u>Cash</u> | + | <u>PPE</u> | - | <u>Accum Deprec.</u> | = | <u>Ret. Earnings</u> |
| | +\$1,000 | | -\$18,000 | | -14000 | = | -\$3,000 |
- e. Reported Net Income for 2005 will be lower by \$3,000, the amount of the loss on disposal. In the Statement of Cash flows, Dove will report an inflow of \$1,000 in the investing section. In the Operating section, using the indirect method, Dove will add back the \$3,000 loss to Net Income, since it reduced Net Income without reducing cash.

2. Depreciation at Delta and Pan Am Airlines

Delta		
Year	Depreciation Expense	Net Book Value at End of Year
Purch		50,000
1989	3,000	47,000
1990	3,000	44,000
1991	3,000	41,000
1992	3,000	38,000
1993	2,062.5	35,937.5
1994	2,062.5	33,875
1995	2,062.5	31,812.5
1996	2,062.5	29,750
1997	2,062.5	27,687.5
1998	2,062.5	25,625
1999	2,062.5	23,562.5

Depreciation computations 1989-1992

Original Cost	50,000
Residual value (10%)	<u>5,000</u>
Amount to depreciate	45,000
Life in years	<u>15</u>
Depreciation expense/yr, 1993-1999:	<u>\$3,000</u>

Depreciation computations 1993-1999

Net book value @ 1/1/93	\$38,000
Life in years	15
Already depreciated	(4)
Extended years	<u>5</u>
Remaining years	<u>16</u>
Depreciation expense/yr	<u>\$2,062.5</u>

Pan Am		
Year	Depreciation Expense	Net Book Value
Purch		50,000
1989	1,700	48,300
1990	1,700	46,600
1991	1,700	44,900
1992	1,700	43,200
1993	1,373	41,826.9
1994	1,373	40,453.8
1995	1,373	39,080.7
1996	1,373	37,707.6
1997	1,373	36,334.5
1998	1,373	34,961.4
1999	1,373	33,588.3

Depreciation computations: 1989-1992

Original Cost	50,000
Residual value (10%)	<u>7,500</u>
Amount to depreciate	42,500
Life in years	<u>25</u>
Depreciation expense/yr, 1993-1999:	<u>\$1,700</u>

Depreciation computations 1993-1999

Net book value @ 1/1/93	\$43,200
Life in years	25
Already depreciated	(4)
Extended years	<u>5</u>
Remaining years	<u>26</u>
Depreciation expense/yr	<u>\$1,373.1</u>