

Additional Problems: Chapter Six: Depreciation and Financial Accounting

6S.1

Fast Eddy, the used car dealer, is selling a second-hand truck to Sam, who needs it for his landscape gardening business.

“That’ll be \$10 000,” says Eddy, “And I’ll give you a \$500 discount since you’re paying cash.”

“Now,” Eddy goes on, “That’s a fine truck, but it won’t last forever. In fact, I’ll bet you keep track of its depreciation on your company books, right?”

Sam doesn’t keep his own company books, since he’s not good with figures, but his nephew Bud looks after the balance sheet for him. Sam remembers that Bud has talked about depreciation before.

“That’s right, ” says Sam, “Bud uses declining balance depreciation. He said he’d depreciate the truck at 20% every year.”

“Now I’ll tell you what I’ll do to make your book-keeping easier,” says Sam, “Every year you just pay me the amount the truck’s depreciated, I’ll keep track of the money for you, and when it’s depreciated to zero, I’ll give you another truck, same fine quality as the one you just bought. And you won’t owe me anything extra, since you’ve already paid for it.”

“That’s good of you, Eddy,” says Sam, “But the thing is, with declining balance, it never does depreciate to zero, does it? The balance just gets smaller every year.”

“You’re right, Sam,” says Eddy, “So here’s what I’ll do. That truck’s worth \$10 000 right now, so when the balance gets down to \$500, I’ll give you a \$500 discount, same as I did today, and give you your replacement truck.”

“I appreciate that, Eddy, I really do,” says Sam, “But I need a reliable vehicle, and I don’t know if that truck will last till the balance gets down to \$500.”

“That’s a fine truck,” says Sam, “And it will probably outlive you and me both. But I’ll tell you what I’ll do, since you’re a good customer. You hold on to that truck just as long as you like, and any time you want to trade, as long as you’ve had it at least three years, you bring it in and I’ll credit you with its depreciated value, according to your own books. Every year up till then you’ll have paid me what it’s depreciated by that year, so we’ll be all square and you drive off the lot with another truck, same value as this one here.”

Sam does his banking with the town bank, which pays 8% interest. What is the present value of the amount he’ll lose if he accepts Eddy’s offer, rather than setting up a sinking fund at the bank? Consider two cases: the case where he waits till the depreciated value of the truck is less than \$500, and the case where he trades it in after three years.

***6S.2**

Using £10 000 of his own money and £15 000 borrowed from the bank at 1% monthly interest, Nigel Chatterham has purchased a steam-cleaning machine. Using this machine, he restores the facades of old, soot-covered buildings in London. He can work for nine months out of the year – the machine does not work well during the winter – and earns £2 000 a month. How much can Nigel pay himself per month if he wants to replace the machine before it becomes worthless, given that it depreciates at 20% per year, straight-line depreciation? If he puts money into a sinking fund, it will earn 0.5% monthly interest. Assume that Nigel would like to be debt-free by the time that he replaces the machine, and that he wants to buy the replacement machine outright, rather than taking out another loan.

6S.3

Kim Gil Dong manufactures and sells jade carvings. He owns a computer-controlled mill, used to cut fine detail into the jade pieces, which is essential to his business. Five years ago it cost him ₩150 000. Three years ago he was considering selling the business, and collected competitive bids for the mill. Based on the bids he received, he concluded that its market value at that time was about ₩108 000. Now he has just solicited a new round of bids, and their average value is ₩66 500. Based on this information, what would be a reasonable estimate for the value of the machine four years from now?

***6S.4**

Viridian Enterprises is a small gardening company. They sell bagged compost, fertiliser and bark mulch, and potted plants. They also provide landscaping services for individuals and corporations. The company does business from a portable shed that stands on a plot of land rented from the city at \$400 per month. They work between the months of April and September, and on September 30 they throw out any remaining potted plants, take down the shed, and store any unsold bags till the following year. The family that owns Viridian also owns a family farm. During the winter months they put manure and mulch from the farm into bags for subsequent sale at the shed. The family does not pay wages to family members, but hires one worker in June and July at \$1 000 per month.

Below are the balance sheet of Viridian Enterprises at the end of the 2008/9 financial year and their income statement for the 09/10 financial year. They have done \$9 000 worth of landscaping during the year, but have only been paid for \$7 500 of it. Of the \$4 500 in accounts receivable from the previous year, they received \$3 900; the family that owed the remaining \$600 has moved out of town and cannot be traced. During the year, Viridian pays off its bank loan and its other debts, and buys 10 000 empty bags at \$0.05 per bag. Over the winter months, half of these bags are filled with compost and half with chipped wood, to be used as mulch. They have also grown a new generation of potted plants from seed, estimated value \$12 000, and bought a large supply of pots at a cost of \$4 000, which they have not yet paid for. The company truck is depreciated at 20% per year, declining balance, and the portable shed at 10% per year, also declining balance. Tools and pots are depreciated at 10% per year, straight line depreciation. Computers are depreciated at 30% per year, declining balance.

Note that only part of the income statement has been completed. Fill in the rest of it, and derive Viridian's balance sheet at the end of the 09/10 financial year.

Viridian Balance Sheet, April 01, 2009

Assets		Liabilities	
Current Assets		Current Liabilities	
Cash	\$9 600	Bank Loan	\$5 000
Accounts Receivable	\$4 500	Taxes due	\$1 200
Potted Plants	\$17 600	Unpaid wages	\$600
150 Bags of mulch	\$900	Accounts payable	\$900
400 Bags of compost	\$3 200	Rent Due	\$400
Total Current Assets	\$35 800		
Fixed Assets		Total Liabilities	
Building	\$22 600		\$ 8 100
Truck	\$9 500	Net Worth	
Various Tools	\$1 600	Total	\$65 900
Computers (2)	\$4 500		
Total Fixed Assets	\$38 200		
Total Assets	\$74 000		

Viridian Income Statement, Year Ending April 01, 2010

Income	
Sales of plants	\$16 000
Sales of 120 bags mulch	
Sales of 300 bags compost	
Landscaping services	
Total	
Expenses	
Salaries	
Loan pay-off	
Rent	
Depreciation	
Bags	
Bad debts	
Gasoline	\$700
Total	
Net Income	

6S.5

SynthGem is a South African company that produces synthetic sapphires and rubies from aluminum ore. The cost of the ore is negligible. The company's chief assets are its buildings and an ultra-high pressure press, which cost R 1 500 000 in 2005. The press depreciates by declining-balance depreciation, and the buildings depreciate at 4% per year, straight-line depreciation.

Balance Sheet for SynthGem, 2008			
Current Assets (R 000)		Current Liabilities	
Cash	50	Bank Loan	1 000
Gems (10 kg)	450		
<i>Total Current Assets</i>	500	<i>Total Liabilities</i>	1 000
Fixed Assets (R 000)		Owner' s Equity	1 593
Buildings	1 000		
Press	1 093		
<i>Total Fixed Assets</i>	2 093		
Total Assets	2 593		

The balance sheet for SynthGem in 2008 is shown above. All figures are given in thousands of rand. Total annual salaries are R 1 200 000. The interest on the bank loan is 5% per year, and the company has arranged to pay only the annual interest, deferring repayment of the principal for the next five years. What mass of gems must be produced in the coming year if the owner's equity in 2009 is to be equal to its equity in 2008?