

**CPA  
Accelerated Depreciation Methods**

Exam Results

Question #1 (AICPA.090635FAR-II-D)

Carr, Inc. purchased equipment for \$100,000 on January 1, 2002. The equipment had an estimated 10-year useful life and a \$15,000 salvage value. Carr uses the 200% declining-balance depreciation method. In its 2003 Income Statement, what amount should Carr report as depreciation expense for the equipment?

- A. \$13,600
- B. \$16,000

The 200% declining balance depreciation method is also called the double declining balance method or DDB. Because this is a declining balance method, the book value at the beginning of 2003 must be computed, and that is affected by depreciation in 2002. For 2002, depreciation under DDB is  $2/10 \times \$100,000$  or \$20,000. Note that salvage value is not subtracted when computing depreciation because the "declining balance" is book value. For 2003, depreciation is  $2/10 \times (\$100,000 - \$20,000) = \$16,000$  because the book value at the beginning of 2003 is reduced by 2002 depreciation.

- C. \$17,000
- D. \$20,000

Question #2 (AICPA.990507FAR-FA)

Spiro Corp. uses the sum-of-the-years' digits method to depreciate equipment purchased in January 2003 for \$20,000. The estimated salvage value of the equipment is \$2,000, and the estimated useful life is four years.

What should Spiro report as the asset's carrying amount as of December 31, 2005?

- A. \$1,800
- B. \$2,000
- C. \$3,800

The carrying amount (book value) of a depreciable asset is its original cost less accumulated depreciation. Under sum-of-the-years' digits method of calculating depreciation expense (and, therefore, accumulated depreciation), the net depreciable cost (original cost less estimated salvage value) is multiplied by a factor consisting of:

Numerator = the number of years the current year is from the end of the life of the asset

Denominator = the sum of numbers (digits) for each year in the life of the asset

For Spiro, the net depreciable cost is  $\$20,000 - \$2,000 = \$18,000$ . Since the equipment has an estimated useful life of four years, the sum of the digits for each year would be  $1 + 2 + 3 + 4 = 10$ , the denominator for calculating each year's depreciation. Depreciation for the four years would be:

Year	Depreciable cost	Factor	Annual depreciation	Accumulated depreciation
Carrying value				
2003	$\$18,000 \times 4/10 =$	$5,400$	$\$7,200$	$\$20,000 - 7,200 =$
	$\$12,800$			
2004	$18,000 \times 3/10 =$	$5,400$	$12,600$	$20,000 - 12,600 =$
2005	$18,000 \times 2/10 =$	$3,600$	$16,200$	$20,000 - 16,200 =$
2006	$18,000 \times 1/10 =$	$1,800$	$18,000$	$20,000 - 18,000 =$
Total	$18,000 \times 10/10 =$	$18,000$	$18,000$	$2,000$

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Thus, at the end of 2005 the carrying amount is \$3,800, which also can be calculated as salvage value  $2,000 + (1/10 \times \$18,000) = \$2,000 + \$1,800 = \$3,800$ .

D. \$4,500

Question #3 (AICPA.090634FAR-II-D)

Ajax Corp. has an effective tax rate of 30%. On January 1, 2000, Ajax purchased equipment for \$100,000. The equipment has a useful life of 10 years. What amount of current tax benefit will Ajax realize during 2000 by using the 150% declining-balance method of depreciation for tax purposes instead of the straight-line method?

A. \$1,500

The two depreciation amounts for 2000, the first service year of the asset, are: SL, \$10,000 ( $\$100,000/10$ ); and 150% DB, \$15,000 ( $1.5 \times \text{SL amount}$  or  $1.50/10 \times \$100,000$ ). The difference, \$5,000 is the excess of the 150% DB deduction over the SL deduction. The tax benefit of the \$5,000 excess is \$1,500 ( $\$5,000 \times .30$ ). The firm will pay \$1,500 less in taxes if it uses the 150% DB method compared with the SL method.

B. \$3,000

C. \$4,500

D. \$5,000

Question #4 (AICPA.900520FAR-TH-FA)

A fixed asset with a five-year estimated useful life and no residual value is sold at the end of the second year of its useful life.

How would using the sum-of-the-years'-digits method of depreciation, instead of the double declining balance method of depreciation, affect a gain or loss on the sale of the fixed asset?

Gain    Loss

Decrease    Decrease

Decrease    Increase

Under SYD, total depreciation through the first two years is  $[(5 + 4)/(1 + 2 + 3 + 4 + 5)]\text{Cost} = (9/15)\text{Cost}$ .

Therefore, book value remaining is  $(6/15)\text{Cost} = .4\text{Cost}$ .

Depreciation, year one     $= (2/5)\text{Cost} = .4\text{Cost}$

Depreciation, year two     $= (2/5)(\text{Cost} - \text{Depreciation, year one})$

$= (2/5)[\text{Cost} - (2/5)\text{Cost}]$

$= .4[\text{Cost} - .4(\text{Cost})]$

$= .4(.6\text{Cost}) = .24 \text{ Cost}$

Total depreciation for the two years is therefore  $.4(\text{Cost}) + .24(\text{Cost}) = .64(\text{Cost})$ . Book value remaining is  $(1 - .64)\text{Cost} = .36 \text{ Cost}$ .

The asset has a larger book value under SYD after two years. For a given amount of proceeds on disposal, the larger book value under SYD causes any gain on disposal to be smaller than under DDB and any loss greater than under DDB. In other words, the gain decreases and the loss increases, relative to DDB.

Increase    Decrease

Increase    Increase

Question #5 (AICPA.930527FAR-TH-FA)

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On January 1, 1998, Crater, Inc. purchased equipment having an estimated salvage value equal to 20% of its original cost at the end of a 10-year life. The equipment was sold December 31, 2002, for 50% of its original cost.

If the equipment's disposition resulted in a reported loss, which of the following depreciation methods did Crater use?

- A. Double declining balance.
- B. Sum-of-the-years'-digits.
- C. Straight-line.

The asset was sold when 1/2 of its useful life was expired. (The asset was used 5 years and had an original useful life of 10 years.) If an asset is sold at a loss, then the book value at the date of sale exceeds the proceeds from sale by the amount of the loss. Let C = original cost, and BV = book value at date of sale.

Then  $BV - \text{proceeds} = \text{loss}$  Proceeds = .50C according to the question data.

Thus,  $BV - .50C = \text{loss}$ . Thus, BV must exceed 50% of the original cost because  $BV - .50C$  is a positive number.

The only method from among those listed in the answer alternatives that leaves a BV greater than 50% of original cost after 50% of the useful life has expired is the SL method. The book value after the fifth year under SL is  $C - (C - .2C)(5/10) = .6C$ .

DDB's book value after five years is much less than 50% of original cost because it is an accelerated method. The same holds for SYD. And under composite methods of depreciation, individual assets do not have a separately recorded book value. When sold, accumulated depreciation is debited for the difference between original cost and proceeds. No gain or loss is recognized. Thus, the composite method could not apply in this question.

- D. Composite.

Question #6 (AICPA.920550FAR-P1-FA)

South Co. purchased a machine that was installed and placed in service on January 1, 2004 at a cost of \$240,000. Salvage value was estimated at \$40,000. The machine is being depreciated over 10 years by the double declining balance method. For the year ended December 31, 2005, what amount should South report as depreciation expense?

- A. \$48,000
- B. \$38,400

Depreciation in 2004 =  $\$240,000(2/10) = \$48,000$

Depreciation in 2005 =  $(\$240,000 - \$48,000)(2/10) = \$38,400$

The DDB method's rate is always twice the straight-line rate, or  $2/\text{useful life}$ . The method does not subtract salvage value when computing depreciation, but it also does not reduce book value below salvage value. The depreciation in any year is the rate times the beginning net book value of the asset.

- C. \$32,000
- D. \$21,600

Question #7 (AICPA.901113FAR-P2-FA)

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Vore Corp. bought equipment on January 2, 2004 for \$200,000. This equipment had an estimated useful life of five years and a salvage value of \$20,000. Depreciation was computed by the 150% declining balance method.

The accumulated depreciation balance at December 31, 2005 should be:

A. \$102,000

Depreciation in 2004 =  $\$200,000(1.50/5) = \$60,000$

Depreciation in 2005 =  $(\$200,000 - \$60,000)(1.50/5) = 42,000$

Accumulated depreciation balance at the end of 2005      \$ 102,000

The declining balance class of depreciation method does not deduct salvage value when computing depreciation although care must be taken not to depreciate the asset below salvage value. Also, the rate of depreciation applied to book value is the percentage of the method (150% in this case) divided by the useful life of the asset. Double declining balance, for example, is  $200\%/n$  or  $2/n$  where  $n =$  useful life.

B. \$98,000

C. \$91,800

D. \$72,000

Question #8 (AICPA.08211232FAR-II.D)

A depreciable asset has an estimated 15% salvage value. Under which of the following methods, properly applied, would the accumulated depreciation equal the original cost at the end of the asset's estimated useful life?

Straight-line      Double-declining balance

Yes      Yes

Yes      No

No      Yes

No      No

Salvage value is the portion of the asset's cost not subject to depreciation. Total depreciation, under any method, is limited to depreciable cost (cost less salvage value). The declining balance methods do not subtract salvage when computing depreciation. Care must be taken to avoid depreciating an asset beyond salvage value.

Question #9 (AICPA.900517FAR-P1-FA)

On April 1, 2004, Kew Co. purchased new machinery for \$300,000. The machinery has an estimated useful life of five years, and depreciation is computed by the sum-of-the-years'-digits method.

The accumulated depreciation on this machinery at March 31, 2006 should be:

A. \$192,000

B. \$180,000

\$180,000, the correct answer, equals  $\$300,000[(5 + 4)/(5 + 4 + 3 + 2 + 1)]$ .

Two full years of depreciation have been recorded, and the SYD method uses the number of years left at the beginning of each year as the numerator of the fraction used in depreciation. At the beginning of the first and second years, five and four years of the asset's life remained, respectively. The denominator is the sum of the digits up to the asset's useful life (5).

C. \$120,000

D. \$100,000