

**Custom Assessment** 

Time Spent: 16:11:01

## Scanned by CamScanner

Question 88 of 250

	Year I	Year 2	Year 3	Year 4	Year 5
Before-tax cash flow	\$ 223,000	\$223,000	\$ 223,000	\$ 223,000	\$ 223,000
Depreciation:					
Purchase price ×				6	
MACRS depr. rate	104,000	166,400	99,840	_59,904	29,952**
Taxable income	119,000	56,600	123,160	163,096	193,048
Income tax (30%)	_35,700	16,980	36,948	48,929	57,914
After-tax income	83,300	39.620	86,212	114,167	135,134
Depreciation	104,000	166,400	99,840	59,904	29,952**
After-tax cash flow	\$187,300	\$206,020	\$186,052	\$174.071	\$165,086
Present value	\$167,232*	\$164,238	\$132,428	\$110,625	\$ 93,674

<sup>\*</sup> To calculate the PV of the after-tax cash flow:

Calculator steps: Clear All

Enter 1 in the N key

Calculator

Calculate all the subsequent years in the same manner. Be sure to enter the correct year in N.

\*\*Because the asset was sold before Year 6, under the MACRS half-year convention rule, only half of the depreciation is taken in the year case, it is \$29,952.

Sum of Present Value of After-Tax Cash Flows = \$668,197.

Initial Purchase Price = (\$520,000).

Gain on Sale = Sales Price - Book Value = \$33,000 - \$29,952 = \$3,048.

After-Tax Gain on Sale =  $$3,048 \times (1 - 30\%) = $2,133.60$ .

Calculator steps: Clear All

Enter 5 in the N key

Enter 12 in the I/YR key

Calculator

ABS Corporation is considering an investment in new machinery and is gathering data about the proposed purchase. The new machine costs \$500,000 and will have delivery charges of \$45,000 and installation charges of \$25,000. The new machine will be depreciated over 5 years with a salvage value of \$0. The old machinery had an original cost of \$200,000. The current book value of the old machinery is \$15,000 and has a current market value of \$25,000. The new machine is expected to produce marginal cash revenues of \$325,000 and marginal cash expenses of \$75,000 annually for each of the next 5 years. The new machine will be sold at the end of the 5-year project for its projected salvage value of \$30,000, when it will be fully depreciated. ABS is subject to a 25% tax rate. ABS Corporation has a weighted average cost of capital of 12%, but since this project is riskier than other projects, management has decided to adjust the required rate of return by 2%. Below is a table of present value factors.

## Present Value of \$1 Present Value of a \$1 Annuity 12% 14% 10% 12% 14% 10% 1 0.9091 0.8929 0.8772 0.9091 0.8929 0.8772 2 0.8264 0.7972 0.7695 1.7355 1.6901 1.6467 2.4018 2.3216 3 0.7513 0.7118 0.6750 2.4869 4 0.6830 0.6355 0.5921 3.1699 3.0373 2.9137 5 0.6209 0.5674 0.5194 3.7908 3.6048 3.4331

Calculate the net present value of the project.

(\$200,636.95)

Calculator



## This Answer is Correct

Correct. The installed cost of the new asset equals \$500,000 + \$45,000 + \$25,000 = \$570,000. The after-tax proceeds from the sale of the old asset are  $(\$25,000 - \$15,000) \times (1 - 25\%) = \$7,500$ . The initial investment is \$570,000 - \$7,500 = \$562,500. The depreciation equals  $\$570,000 \div 5$  years = \$114,000 per year. The annual pretax income is \$325,000 - \$75,000 - \$114,000 = \$136,000. After-tax income equals  $\$136,000 \times (1 - 25\%) = \$102,000$ . Incremental operating cash flows are \$102,000 + \$114,000 = \$216,000. Terminal cash flows are  $\$30,000 \times (1 - 25\%) = \$22,500$ . Using a discount rate of 14% (to adjust for risk), NPV =  $\$216,000 \times 3.4331 + \$22,500 \times 0.5194 - \$562,500 = \$190,731.28$ .

Calculator

VCI Corporation is considering an investment in new machinery and is gathering data about the proposed purchase. The new machine costs \$250,000 and will have delivery charges of \$15,000 and installation charges of \$25,000. The new machine will be depreciated over 5 years with a salvage value of \$10,000. The old machinery had an original cost of \$100,000. The current book value of the old machinery is \$10,000 and it has a current market value of \$7,500. The new machine is expected to produce marginal cash revenues of \$150,000 and marginal cash expenses of \$30,000 annually for each of the next 5 years. VCI is subject to a 25% tax rate. Calculate VCI Corporation's initial investment. Your Answer \$281,875 \$290,000

- \$250,000
- \$282,500
- You Answered Correctly!

Calculator

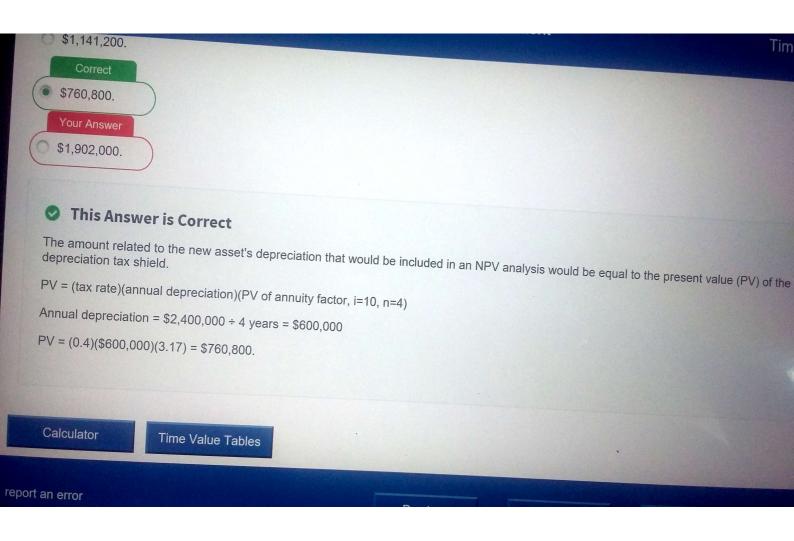
0	\$290,000				
0	\$250,000				

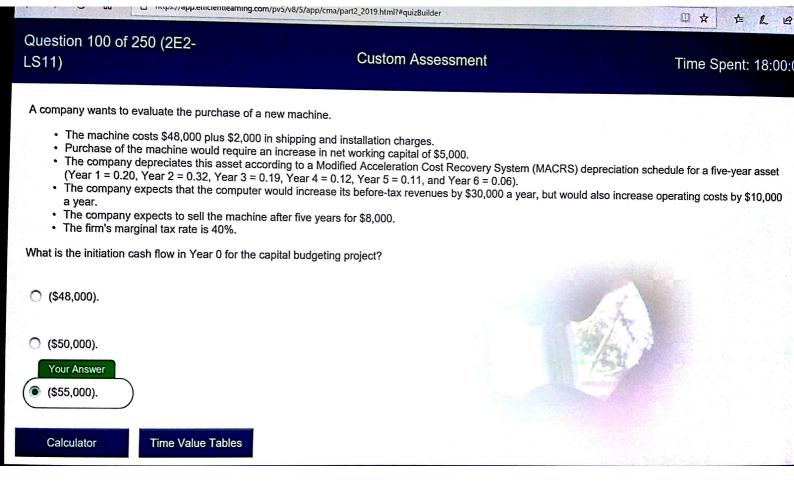
\$282,500

## You Answered Correctly!

Correct. The initial investment is the installed cost of the new machine minus the after-tax proceeds from the sale of the old machine. The installed cost of the new machine equals \$250,000 + \$15,000 + \$25,000 = \$290,000. The loss on the sale of the old machine equals \$7,500 - \$10,000 = \$2,500). The tax savings is  $$2,500 \times 25\% = $625$ . The after-tax proceeds from the sale of the old machine equals the market value plus the tax savings (\$7,500 + 625 = \$8,125). The initial investment equals \$290,000 - \$8,125 = \$281,875.

Calculator





Topeka Products uses the net present value (NPV) method to evaluate capital projects. Topeka plans to acquire a depreciable asset on January 1 of next year

- The new asset has an estimated service life of four years, a zero terminal disposal value, and will be depreciated on a straight-line basis.
- The new asset will replace an existing asset that is expected to be sold for \$350,000.
- The tax basis of the existing asset is \$330,000.
- Topeka is subject to an effective income tax rate of 40% and assumes that any gains or losses affect the taxes paid at the end of the year in which the gains or losses occur.

  Topeka uses a 10% discount rate for NPV analyses.

The present value of the new asset's depreciation tax-shield that would be included in an NPV analysis is:

- \$960,000.
- \$1,141,200.



Calculator

