

**Problem B2** Supplemental Problem Ch. 7 Taxes and Fixed Charges

**Goal:** Determine Oil Well Depletion & After Tax Profit

**Given:**

purchased 1/16 interest in a producing oil well		0.0625	
Investment	\$225,000		
Total recoverable reserves	300,000	barrels	
Income	\$7,850	per year	
Total annual production	2,000	barrels	
Annual operating expenses	\$600		
Income Tax Rate	41%		

The equation:

**Approach:** Determine quantity of reserve actually purchased  
 1/16 of total barrels; then purchase price per barrel  
 Determine share of barrels sold, then 'Unit-of-Production' depreciation = depletion  
 1/16 of total barrels sold; then time price per barrel

Net Income = revenue received - operating costs  
 Taxable income = Net Income - Depletion Allowance  
 Income taxes paid = Taxable Income \* Tax Rate  
 After Tax Profit (actual cash flow) = Net Income - Taxes Paid  
 After Tax Profit (with internal capital recovery) = Net Income - Taxes Paid - Depletion Allowance

**Calculations:**

Barrels in 1/16 interest	18,750	barrels = 300,000 / 16
Original per barrel investment	\$12.00	per barrel = \$225,000 / 18,750 barrels
First year depletion	125	barrels sold = 2,000 / 16
<b>Answer (a)</b> Depletion Allowance	<b>\$1,500</b>	=E33*E31 = \$12.00/barrel * 125 barrels
Net Income	\$7,250	per year = \$7,850 - \$600
Taxable Income	\$5,750	per year = \$7,250 - \$1,500 =E34-E32
Taxes Paid	\$2,357.50	per year = \$5,750 * 41% =E36*E11

**Assume:** Prepaid initial investment, actual first year cash flow: ( no capital recovery expense )

**Answer (b)** After Tax Profit **\$4,892.50** =E34-E36 = \$7,250 - \$2,357.50

**Assume:** Tax depletion allowance is identical to your internal capital recovery, then first year cash flow: ( with capital recovery expense )

**Answer (b)** After Tax Profit **\$3,392.50** =E35-E36 = \$5,750 - \$2,357.50

note: selling price was \$7,850/125 barrels	\$62.80	per barrel	0.67% of oil reserve produced
note: before tax ROI	3.2%	excluding capital recovery depletion	
note: after tax ROI	1.5%	including capital recovery as expense	
note: after tax ROI	2.2%	excluding capital recovery depletion	