

## Problem 8-8

**Goal:** Determine ROI after taxes and payback period

**Given:**

Total Capital Investment	\$10,000,000	
Working Capital Investment	\$1,000,000	
Annual Sales	\$8,000,000	
Annual Expenditures	\$2,000,000	
Project Life	10	years (Assuming straight-line depreciation)

**Approach:**

use Table 8-3 definitions:

All expenses = cash expenses + **Depreciation**

Straight-line depreciation of Fixed Capital = Fixed Capital / life

Fixed Capital Investment = Total Capital - Working Capital

Assume: identical constant depreciation amount for BOTH tax calculation and capital recover

ASSUME: Income Tax Rate = **35%**

a) ROI = Net Profit After Taxes / Total Capital Investment

Net Profit = Revenue - All expenses - Income taxes paid

Income taxes = ( Revenue - All Expenses ) \* tax rate

b) Pay Back Period = Fixed Capital Investment / Cash Flow After Taxes

Cash Flow = Net Profit + Depreciation

**Calculations:**

Depreciation	\$900,000	= (\$10,000,000 - \$1,000,000) / 10
All expenses	\$2,900,000	= \$2,000,000 + \$900,000
Income Taxes Paid	\$1,785,000	= (\$8,000,000 - \$2,900,000) * 0.35
Net Profits	\$3,315,000	= \$8,000,000 - \$2,900,000 - \$1,785,000
<b>ROI</b>	<b>33.150%</b>	= ( \$3,315,000 \$/yr / \$10,000,000 ) * 100

**Answer a)**

**ROI**

**33.15%**

Fixed Capital Investment	\$9,000,000	
Cash Flow	\$4,215,000	
Pay Back Period	2.1352	years

**Answer b)**

**Pay Back Period**

**2.14** years

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10/26/2005