

FIN 3331 Critical Thinking Skills Assignment

- (1) **Evaluation skill:** Evaluation is associated with the ability to judge the value of material for a given purpose. The judgements are to be based on definite criteria. These criteria may be determined by relevance, purpose, statements, and numerical values or calculations. Please watch the video clips provided on Evaluating Logic Part 1,2 and 3

Read the following vignette carefully and answer questions using the evaluation skill.

Emily Smith just received a promotion at work that increased her annual salary to \$42,000. She is eligible to participate in her employer's 401(k) retirement plan to which the employer matches, dollar for dollar, workers' contributions up to 5% of salary. However, Emily wants to buy a new \$25,000 car in 3 years, and she wants to have enough money to make a \$10,000 down payment on the car and finance the balance. Fortunately, she expects a sizable bonus this year that she hopes will cover that down payment in 3 years.

A wedding is also in her plans. Emily and her boyfriend, Paul, have set a wedding date two years in the future, after he finishes medical school. In addition, Emily and Paul want to buy a home of their own in 5 years. This might be possible because two years later, Emily will be eligible to access a trust fund left to her as an inheritance by her late grandfather. Her trust fund has \$80,000 invested at an interest rate of 5%.

1. Justify Emily's participation in her employer's 401(k) plan using the time value of money concepts by calculating the actual annual return on her own contributions. She will contribute \$1,000 per year to her 401(k) for 25 years and the employer will match dollar for dollar. Assume that her 401(k) earns 6% per year for 25 years and all contributions are made at the end of each year.
2. Calculate the amount of money that Emily needs to set aside from her bonus this year to cover the down payment on a new car, assuming she can earn 4% on her savings. What if she could earn 10% on her savings?
3. What will be the value of Emily's trust fund in 36 years, assuming she takes possession of \$20,000 in 2 years for her wedding, and leaves the remaining amount of money untouched where it is currently invested?
4. Suggest at least two conditions that Emily and Paul could take to accumulate more for their retirement.

5. Suppose that Emily and Paul purchase a \$200,000 home in 5 years and make \$40,000 down payment immediately. Find the monthly mortgage payment assuming that the remaining balance is financed at a 3% fixed rate for 15 years. What if its mortgage term is 30 years?
6. What can you conclude about the relationship between the mortgage term and the amount of the monthly payment? From Question 5, is the monthly payment with the 30-year term half as large as the monthly payment with the 15-year term? Explain.

(2) **Deductive reasoning skill:** Deductive reasoning is a logical process in which a conclusion is based on the concordance of multiple premises that are generally assumed to be true. Please watch the video clip provided on Deductive Reasoning

Do the following problems (Q1 - Q5) and then, answer the last question (Q6) using the deductive reasoning skill.

Use the following information to answer the following questions.

ABC, Inc. Income Statement (in thousands)

December 31, 2014

Sales	\$200,000	
Cost of goods sold	<u>140,000</u>	
Gross profit on sales	60,000	
Operating expenses	<u>56,000</u>	
Operating income (EBIT)	4,000	
Interest expense	<u>1,000</u>	
Earnings before tax	3,000	
Income tax	<u>1,050</u>	
Net income available to common stockholders	<u>\$1,950</u>	
Number of shares outstanding		1, 500
Market price per share		\$22

ABC, Inc. Balance Sheet (in thousands)

December 31, 2014

<u>Assets</u>	
Cash	\$2,000
Accounts receivable	17,800
Inventories	<u>8,700</u>
Total current assets	28,500
Gross fixed assets	70,000
Accumulated depreciation	<u>26,500</u>
Net fixed assets	<u>43,500</u>
Total assets	<u>\$72,000</u>
<u>Liabilities and Equity</u>	
Accounts payable	\$18,000

Accruals	<u>13,350</u>
Total current liabilities	31,350
Long-term debt	<u>8,250</u>
Total liabilities	39,600
Common stock (par value and paid in capital)	2,000
Retained earnings	<u>30,400</u>
Total stockholders' equity	<u>32,400</u>
Total liabilities and equity	<u>\$72,000</u>

Industry Key Ratios

	Industry Average Ratios	
Current ratio	1.1	
Quick ratio	0.60	
Days Sales Outstanding (DSO)		25 days
Fixed assets turnover	5.8	
Total asset turnover	2.95	
Liabilities-to-assets ratio	65%	
Times-interest-earned	3.2	
Net profit margin	1.3%	
Return on equity	7.32%	
Price/earnings ratio	20.38	
Market/book ratio	3.19	

1. Calculate current ratio and acid test ratio for the firm.
2. Calculate DSO, fixed assets turnover, and total asset turnover for the firm.
3. Calculate liabilities-to-assets ratio and times-interest-earned ratio for the firm.
4. Calculate net profit margin and return on equity for the firm.
5. Evaluate the performance of the firm in the following areas:

Liquidity management

Asset management

Debt management

Profitability management

When you explain the firm's strength or weakness in each area, you must support your arguments through the evaluative reasoning process by providing reasons, methods, criteria, or assumptions behind the claims made.

6. Deductive reasoning starts with a general principle and deduces that it applies to a specific case. Deductive reasoning moves with exacting precision from the assumed truth of a set of premises to a conclusion which cannot be false if those premises are true. Explain the deductive reasoning process applied to analyze the firm's performance.