

Chapter 2

Using Financial Statements and Budgets

Chapter Outline

Learning Objectives

- LO1 Understand the relationship between financial plans and statements.**
- LO2 Prepare a personal balance sheet.**
- LO3 Generate a personal income and expense statement.**
- LO4 Develop a good record-keeping system and use ratios to evaluate personal financial statements.**
- LO5 Construct a cash budget and use it to monitor and control spending.**
- LO6 Apply time value of money concepts to put a monetary value on financial goals.**

I. Mapping Out Your Financial Future

- A. The Role of Financial Statements in Financial Planning
- B. Exhibit 2.1 The Interlocking Network of Financial Plans and Statements

II. The Balance Sheet: How Much Are You Worth Today?

- A. Assets: The Things You Own
- B. Liabilities: The Money You Owe
- C. Net Worth: A Measure of Your Financial Worth – Assets - Liabilities
- D. Balance Sheet Format and Preparation [Worksheet 2.1]
- E. A Balance Sheet for Silas and Emily Nelson

III. The Income and Expense Statement: What We Earn and Where It Goes

- A. Income: Cash In
- B. Expenses: Cash Out [See Note about Credit Card Purchases below]
- C. Cash Surplus (or Deficit) [Exhibit 2.3 How We Spend Our Income]
- D. Preparing the Income and Expense Statement [Worksheet 2.2]
- E. An Income and Expense Statement for Silas and Emily Nelson

IV. Using Your Personal Financial Statements

- A. Keeping Good Records
 - 1. Managing Your Financial Records
 - 2. Excel Used to Create an Electronic Check Register
- B. Tracking Financial Progress: Ratio Analysis [Exhibit 2.4]
 - 1. Balance Sheet Ratios
 - 2. Income and Expense Statement Ratios

V. Cash In and Cash Out: Preparing and Using Budgets

- A. The Budgeting Process
 - 1. Estimating Income
 - 2. Estimating Expenses
 - 3. Finalizing the Cash Budget [See Worksheet 2.1]
- B. Dealing with Deficits
- C. A Cash Budget for Silas and Emily Nelson
- D. Using Your Budgets

VI. The Time Value of Money: Putting a Dollar Value on Financial Goals

- A. Future Value
 - 1. Future Value of a Single Amount
 - 2. Future Value of an Annuity
- B. Present Value
 - 1. Present Value of a Single Amount
 - 2. Present Value of an Annuity
 - 3. Other Applications of Present Value

Note about Credit Card Purchases

Credit card purchases are a problem for cash basis statements. Expenses are defined to be “money spent on living expenses and to pay taxes, purchase assets, or repay debt.” All of these examples of cash outlays may be paid for with a credit card, which is a liability that results in a cash outlay in a future period [year or month.] Many, if not most people treat a credit card as a substitute for cash. They pay the entire credit card balance due when the statement is received thereby incurring no interest cost. In these cases, the cash outlay is only one month after the purchase. If a longer period is required to pay off the credit card, the best advice is to get an installment loan which has a lower interest rate than credit cards. Most accounting software treat credit card purchases as an expense and a liability. The actual cash outlay occurs when the liability is paid. In the solutions to problems included in this text, a credit card purchase is treated as an expense of the period even though the cash outlay to pay the credit card debt occurs in a future period. In preparing a cash budget, the cash outlay is recorded in period the credit card debt is expected to be paid.

Major Topics

We can achieve greater wealth and financial security through the systematic development and implementation of well-defined financial plans and strategies. Certain life situations require special consideration in our financial planning. Financial planners can help us attain our financial goals, but should be chosen with care. Personal financial statements work together to help us monitor and control our finances in order that we may attain our future financial goals by revealing our current situation, showing us how we used our money over the past time period, and providing a plan for expected future expenses. Time value of money calculations allow us to put a dollar value on these future financial goals and thereby plan more effectively. The major topics covered in this chapter include:

1. The importance of financial statements in the creation and evaluation of financial plans.
2. Preparing and using the personal balance sheet to assess your current financial situation.
3. The concept of solvency and personal net worth.
4. Preparing and using the personal income and expense statement to measure your financial performance over a given time period.
5. The importance of keeping and organizing your records.
6. The use of financial ratios to track financial progress.
7. Developing a personal budget and using it to monitor and control progress toward future financial goals.
8. How to deal with cash deficits.
9. The use of time value of money concepts in putting a dollar value on financial goals.

These topics are also summarized in Study Tools 2, a chapter review card, found at the end of this textbook.

Key Concepts

Personal financial statements play an extremely important role in the financial planning process. They can help in both *setting goals* and in *monitoring progress toward goal achievement* to determine whether one is "on track." Budgeting and financial planning guide future outlays. As such, they require projections of future needs, desires, and costs. Setting up a specific set of forecasts is the basis for future success. The following phrases represent the key concepts discussed in the chapter.

1. Personal financial statements
2. Balance sheet equation
3. Types of assets, including liquid assets, investments, and personal and real property
4. Fair market value
5. Liabilities, including current liabilities, open account credit obligations, and long-term liabilities
6. Net worth and equity
7. Insolvency
8. Income
9. Expenses, including fixed and variable expenses
10. Cash basis
11. Cash surplus or deficit
12. Record keeping
13. Liquidity, solvency, savings, and debt service ratios
14. Ratio analysis of financial statements
15. Cash budgets
16. Estimating income
17. Estimating expenses
18. Monitoring and controlling actual expenses
19. Time value of money concepts and calculations
20. Income and expense statement
21. Budget control schedule
22. Future value

- 23. Compounding
- 24. Annuity
- 25. Present value
- 26. Discounting

Financial Planning Exercises

The following are solutions to problems at the end of the PFIN6 chapter 2.

1. *Preparing financial statements:* *Daniel Hernandez is preparing his balance sheet and income and expense statement for the year ending December 31, 2017. He is having difficulty classifying six items and asks for your help. Which, if any, of the following transactions are assets, liabilities, income, or expense items?*

a. Daniel rents a house for \$1,350 a month.

b. On June 21, 2017 Daniel bought diamond earrings for his wife and charged them using his MasterCard. The earrings cost \$900, but he hasn't yet received the bill.

c. Daniel borrowed \$3,500 from his parents last fall, but so far, he has made no payments to them.

d. Daniel makes monthly payments of \$225 on an installment loan; about half of it is interest, and the balance is repayment of principal. He has 20 payments left, totaling \$4,500.

e. Daniel paid \$3,800 in taxes during the year and is due a tax refund of \$650, which he hasn't yet received.

f. Daniel invested \$2,300 in some common stock.

g. Daniel's Aunt Rose gave him a birthday gift of \$300.

In this exercise, we assume that the individual uses the cash basis of accounting rather than the accrual basis for reporting on the financial statements.

a. Rent paid is listed as an expense. For the year, his rent expense would be \$16,200 ($\$1,350 \times 12$) unless he has rent due, the amount of which would show up as a current liability on his balance sheet.

b. The earrings should be shown on the income statement as an expense—gifts. Although the earrings have not been paid for, credit card purchases are treated as expenses—the credit card is a substitute for cash. The \$900 debt outstanding is listed as a current liability on the balance sheet.

c. Since no loan payments were made during the period, a corresponding expense would not appear, but the obligation to repay the \$3,500 would be shown as a liability on the

balance sheet. However since he is “borrowing” from his parents, this may not be a liability, rather a gift from his parents. If the parents expect the amount to be repaid it is a loan; otherwise, it is a gift. Regardless, it will increase cash and increase either liability or equity, depending upon whether it is a loan or a gift.

d. Assuming he made 12 payments during the year, Daniel would list loan payments as an expense of \$2,700. Whether the expense is principle or interest is of no interest to Daniel; he has to pay the \$2,700. If the loan cannot be prepaid [that is the principle may not be paid before it is due], the remaining liability is \$4,500. If the loan can be prepaid then of the 20 remaining payments, only about half are for principal. Therefore, on the balance sheet he should show the unpaid principal of about \$2,250 ($20 \times \$225/2$) as a liability. The balance of the future payments is interest not yet due and therefore should not appear on the balance sheet. If the loan was used to purchase something of value, he would list the fair market value of the item as an asset on his balance sheet.

e. The \$3,800 of taxes paid should appear as an expense on the income and expense statement for the period, but because the tax refund was not received during the year it would not be included as income on the statement.

f. The investment in common stock would appear on balance sheet as a reduction in cash (an asset) and an increase in "investments" (an asset) at the current fair market value of the stock.

g. Daniel's Aunt June gave him \$300. The cash on the balance sheet will increase by \$300 and the equity or net worth will also increase by \$300. Aunt June is investing in Daniel.

2. Preparing personal balance sheet. Use Worksheet 2.1. Ella Campbell's banker has asked her to submit a personal balance sheet as of June 30, 2017, in support of an application for a \$6,000 home improvement loan. She comes to you for help in preparing it. So far, she has made the following list of her assets and liabilities as of June 30, 2017:

Item	Asset/Liability	Sub-total
Cash on hand	\$ 70	
Balance in checking account	180	
Balance in money market deposit account with Southwest Savings	<u>650</u>	900
Bills outstanding: Telephone	\$ 20	
Electricity	70	
Charge account balance	190	
Visa	180	
MasterCard	220	
Taxes	400	
Insurance	<u>220</u>	1,300
Condo and property		68,000
Condo mortgage loan		52,000
Automobile: 2013 Honda Civic		12,380
Installment loan balances: Auto loans	3,000	
Furniture loan	<u>500</u>	3,500
Personal property: Furniture 1,050	1,050	
Clothing	<u>900</u>	1,950
Investments: U.S. government savings bonds	500	
Stock of Delta Corp.	<u>3,000</u>	3,500

From the data given, prepare Ella Campbell's balance sheet, dated June 30, 2017 (follow the balance sheet form shown in Worksheet 2.1). Then evaluate her balance sheet relative to the following factors: (a) solvency, (b) liquidity, and (c) equity in her dominant asset.

BALANCE SHEET			
Name(s) Ella Campbell		Date June 30, 2017	
ASSETS		LIABILITIES	
Liquid Assets		Current Liabilities	
Cash on hand	\$ 70.00	Utilities	\$ 90.00
In checking	180.00	Rent	
Savings accounts	650.00	Insurance premiums	220.00
Money market funds and deposits		Taxes	400.00
Certificates of deposit (<1 yr. to maturity)		Medical/dental bills	
		Repair bills	
Total Liquid Assets	\$ 900.00	Bank credit card balances	400.00
Investments		Dept. store credit card balances	190.00
Stocks	\$ 3,000.00	Travel and entertainment card balances	
		Gas and other credit card balances	
Bonds	500.00	Bank line of credit balances	
		Other current liabilities	
Certificates of deposit (>1 yr. to maturity)			
Mutual funds		Total Current Liabilities	\$ 1,300.00
		Long-Term Liabilities	
Real estate		Primary residence mortgage	\$ 52,000.00
Retirement funds, IRA		Second home mortgage	
Other		Real estate investment mortgage	
Total Investments	\$ 3,500.00	Auto loans	3,000.00
Real Property		Appliance/furniture loans	500.00
Primary residence	\$ 68,000.00	Home improvement loans	
Second home		Single-payment loans	
Other		Education loans	
Total Real Property	\$ 68,000.00	Margin loans	
Personal Property		Other long-term loans	
Auto(s): 2013 Honda Civic	\$ 12,380.00	Total Long-Term Liabilities	\$ 55,500.00
Auto(s):		(II) Total Liabilities	
Recreational vehicles		\$ 56,800.00	
Household furnishing	1,050.00	Net Worth [(I) - (II)]	
Jewelry and artwork		\$ 29,930.00	
Other	900.00	Total Liabilities and Net Worth	
Other		\$ 86,730.00	
Total Personal Property	\$ 14,330.00		
(I) Total Assets	\$ 86,730.00		

- a. *Solvency*: This term refers to having a positive net worth. The calculation for her solvency ratio is as follows:

$$\text{Solvency Ratio} = \frac{\text{Total Net Worth}}{\text{Total Assets}} = \frac{\$29,930}{\$86,730} = 34.5\%$$

This indicates that Leslie could withstand about a 34% decline in the market value of her assets before she would be insolvent. Although this is not too low a value, some thought might be given to increasing her net worth.

- b. *Liquidity*: A simple analysis of Leslie's balance sheet reveals that she's *not very liquid*. In comparing current liquid assets (\$900) with current bills outstanding (\$1,300), it is obvious that she cannot cover her bills and is, in fact, \$400 short (i.e., \$1,300 current debt – \$900 current assets). Her liquidity ratio is:

$$\text{Liquidity ratio} = \frac{\text{Liquid Assets}}{\text{Total Current Debt}} = \frac{\$ 900}{\$1,300} = 69.2\%$$

This means she can cover only about 69% of her current debt with her liquid assets. If we assume that her installment loan payments for the year are about \$2,000 (half the auto loan balance and all of the furniture loan balance) and add them to the bills outstanding, the liquidity ratio at this level of liquid assets is:

$$\text{Liquidity ratio} = \frac{\text{Liquid assets}}{\text{Total Current Debts}} = \frac{\$ 900}{\$3,300} = 27.3\%$$

This indicates that should her income be curtailed, she could cover only about 27% of her existing one-year debt obligations with her liquid assets—and this does *not* include her mortgage payment! This is clearly not a favorable liquidity position.

- c. *Equity in her Dominant Asset*: Her dominant asset is her condo and property, which is currently valued at \$68,000. Since the loan outstanding on this asset is \$52,000, the equity is \$16,000 (i.e., \$68,000 – \$52,000). This amount indicates about a 24% equity interest (i.e., \$16,000/\$68,000) in the market value of her real estate. This appears to be a favorable equity position.

3. Preparing personal income and expense statement. Use Worksheet 2.2. Ivy and Jack Davis are about to construct their income and expense statement for the year ending December 31, 2017. Ivy works full time while Jack is finishing up graduate school. They have put together the following income and expense information for 2017:

Ivy's salary \$47,000

Reimbursement for travel expenses 1,950

Interest on:

Savings account 110

Bonds of Gamma Corporation 70

Groceries 4,150

Rent 9,600

Utilities 960

Gas and auto expenses 650

Jack's tuition, books, and supplies 3,300

Books, magazines, and periodicals 280

Clothing and other miscellaneous expenses 2,700

Cost of photographic equipment purchased with charge card 2,200

Amount paid this year on photographic equipment 1,600

Ivy's travel expenses 1,950

Purchase of a used car (cost) 9,750

Outstanding loan balance on car 7,300

Purchase of bonds in Gamma Corporation 4,900

Using the information provided, prepare an income and expense statement for the Davis' for the year ending

December 31, 2017 (follow the form shown in Worksheet 2.2).

Comments on Problem:

1. Reimbursement of travel is not income nor is the travel expenses an expense. If Ivy's expenses had exceeded the reimbursement, the excess expenses would be expensed. Similarly, if the reimbursement exceeded the expenses, the excess would be income.
2. The photographic equipment was purchased with a credit card with a cost of \$2,200. Of this amount, \$1,600 has been paid leaving a balance of \$600. As noted above [Note on Credit Card Purchases] the entire purchase amount is considered an expense. While only \$1,600 has been paid, the purchase was \$2,200 and that is the amount that is useful to Ivy and Jack. On the balance sheet, a Balance on Credit Card Due of \$600 would be shown. Paying off a liability in the next year that is associated with an item previously expensed [the \$600 here] is not shown as an expense again. It will be an item on a cash budget since the \$600 is a cash outlay, but it is not an expense.
3. The purchase of the car is a long term asset with an installment loan attached. Thus, the car is recorded as an asset and the loan a liability. The related expenses shown on the income statement is the amount paid on the loan in the current year [cost \$9,750 – year end balance \$7,300 = \$2,450 the amount of expense for this year.] Most likely there is some additional amount of interest that was paid, but the problem does not give that information. This interest would be an expense.

INCOME AND EXPENSE STATEMENT			
Name(s)	Ivy and Jack Davis		
For the	Year	Ended	December 31, 2017
Income			
Wages and salaries	Name: Ivy's salary	\$	47,000.00
	Name:		
Self-employment income			
Bonuses and commissions			
Investment income	Interest received		180.00
	Dividends received		
	Rents received		
	Sale of securities		
	Other		
Pensions and annuities			
Other income			
		(I) Total Income	\$ 47,180.00
Expenses			
Housing	Rent/mortgage payment (include insurance and taxes, if applicable)	\$	9,600.00
	Repairs, maintenance, improvements		
Utilities	Gas, electric, water		960.00
	Phone		
	Cable TV and other		
Food	Groceries		4,150.00
	Dining out		
Transportation	Auto loan payments		2,450.00
	License plates, fees, etc.		
	Gas, oil, repairs, tires, maintenance		650.00
Medical	Health, major medical, disability insurance (payroll deductions or not provided by employer)		
	Doctor, dentist, hospital, medicines		
Clothing	Clothes, shoes, and accessories		2,700.00
Insurance	Homeowner's (if not covered by mortgage payment)		
	Life (not provided by employer)		
	Auto		
Taxes	Income and social security		
	Property (if not included in mortgage)		
Appliances, furniture, and other major purchases	Loan payments		
	Purchases and repairs		2,200.00
Personal care	Laundry, cosmetics, hair care		
Recreation and entertainment	Vacations		
	Other recreation and entertainment		280.00
Other items	Jack's tuition, books, supplies		3,300.00
		(II) Total Expenses	\$ 26,290.00
		CASH SURPLUS (OR DEFICIT) [(I)-(II)]	\$ 20,890.00

4. *Preparing cash budgets:* *Lucas and Emma Mendoza are preparing their 2018 cash budget. Help the Mendozas reconcile the following differences, giving reasons to support your answers.*

a. Their only source of income is Lucas' salary, which amounts to \$5,000 a month before taxes. Emma wants to show the \$5,000 as their monthly income, whereas Emma argues that his take-home pay of \$3,917 is the correct value to show.

b. Emma wants to make a provision for fun money, an idea that Lucas doesn't understand. He asks, "Why do we need fun money when everything is provided for in the budget?"

- a. The before tax salary [gross salary] is the amount that should be reported in the cash budget. Also the tax withheld [$\$5,000 - 3,917 = 1,083$] should be shown as a cash outlay. If only the net salary is shown, important data will be lost. Also, after the tax return is filed in the following year, there may be an amount due or a refund. If only the net amount is shown, the correct tax amount will not be known.
- b. By having an allowance for "fun money," the Mendozas have specifically set aside a certain portion of their income for a little self-indulgence. This will serve three basic purposes: (1) it will give a little financial independence to each member of the family; (2) to a certain extent it allows for a little impulse buying which might further the enjoyment of life [however, it allows for this luxury under a budget control and diminishes the possibility of it occurring with an allocation from another account]; and (3) it generally promotes a higher quality of life. Thus, the inclusion of "fun money" is probably justified.

PLEASE NOTE: The following problems deal with time value of money, and solutions using both the tables and the financial calculator will be presented. The factors taken from the tables are as follows: future value—Appendix A; future value annuity—Appendix B; present value—Appendix C; present value annuity—Appendix D. If using the financial calculator, set on *End Mode* and *1 Payment/Year*. The +/- indicates the key to change the sign of the entry, in these instances from positive to negative. This keystroke is required on some financial calculators in order to make the programmed equation work. Other calculators require that a "Compute" key be pressed to attain the answer.

5. *Calculating present and future values:* *Use future or present value techniques to solve the following problems.*

a. If you inherited \$45,000 today and invested all of it in a security that paid a 7 percent rate of return, how much would you have in 25 years?

b. If the average new home costs \$275,000 today, how much will it cost in 10 years if the price increases by 5 percent each year?

c. You think that in 15 years, it will cost \$214,000 to provide your child with a 4-year college education. Will you have enough if you take \$75,000 today and invest it for the next 15 years at 4 percent?

d. If you can earn 4 percent, how much will you have to save each year if you want to retire in 35 years with \$1 million?

- a. At the end of 25 years, your \$45,000 investment would grow to \$244,215 at a 7% return.

$\begin{aligned} \text{FV} &= \text{PV} \times \text{FV factor } 7\%, 25 \text{ yrs.} \\ &= \$45,000 \times 5.427 \\ &= \underline{\$244,215} \end{aligned}$	<table border="0"> <tr> <td>45000</td> <td>+/-</td> <td>PV</td> </tr> <tr> <td>7</td> <td></td> <td>I</td> </tr> <tr> <td>25</td> <td></td> <td>N</td> </tr> <tr> <td>FV</td> <td></td> <td>\$244,234.47</td> </tr> </table>	45000	+/-	PV	7		I	25		N	FV		\$244,234.47
45000	+/-	PV											
7		I											
25		N											
FV		\$244,234.47											

- b. At the end of 10 years the average new home, which costs \$275,000 today, will cost \$447,975 if prices go up at 5% per year.

$\begin{aligned} \text{FV} &= \text{PV} \times \text{FV factor } 5\%, 10 \text{ yrs.} \\ &= \$275,000 \times 1.629 \\ &= \underline{\$447,975} \end{aligned}$	<table border="0"> <tr> <td>275000</td> <td>+/-</td> <td>PV</td> </tr> <tr> <td>5</td> <td></td> <td>I</td> </tr> <tr> <td>10</td> <td></td> <td>N</td> </tr> <tr> <td>FV</td> <td></td> <td>\$447,946.02</td> </tr> </table>	275000	+/-	PV	5		I	10		N	FV		\$447,946.02
275000	+/-	PV											
5		I											
10		N											
FV		\$447,946.02											

- c. No, you will have approximately \$78,925 less than your estimate of \$214,000 (or 214,000 - \$135,075).

$\begin{aligned} \text{FV} &= \text{PV} \times \text{FV factor } 4\%, 15 \text{ yrs.} \\ &= \$75,000 \times 1.801 \\ &= \underline{\$135,075} \end{aligned}$	<table border="0"> <tr> <td>75000</td> <td>+/-</td> <td>PV</td> </tr> <tr> <td>4</td> <td></td> <td>I</td> </tr> <tr> <td>15</td> <td></td> <td>N</td> </tr> <tr> <td>FV</td> <td></td> <td>\$135,070.76</td> </tr> </table>	75000	+/-	PV	4		I	15		N	FV		\$135,070.76
75000	+/-	PV											
4		I											
15		N											
FV		\$135,070.76											

You will need to deposit \$10,687.18 at the end of each year for 15 years in order to reach the \$214,000 goal.

$\begin{aligned} \text{PMT} &= \text{FV} \div \text{FVA factor } 4\%, 15 \text{ yrs.} \\ &= \$214,000 \div 20.024 \\ &= \underline{\$10,687.18} \end{aligned}$	<table border="0"> <tr> <td>214000</td> <td>+/-</td> <td>FV</td> </tr> <tr> <td>4</td> <td></td> <td>I</td> </tr> <tr> <td>15</td> <td></td> <td>N</td> </tr> <tr> <td>PMT</td> <td></td> <td>\$10,687.40</td> </tr> </table>	214000	+/-	FV	4		I	15		N	PMT		\$10,687.40
214000	+/-	FV											
4		I											
15		N											
PMT		\$10,687.40											

- d. You will need to invest \$13,577.55 at the end of each year at a rate of 4% for the next 35 years in order to retire with \$1 million.

$\begin{aligned} \text{PMT} &= \text{FV} \div \text{FVA factor } 4\%, 35 \text{ yrs.} \\ &= \$1,000,000 \div 73.651 \\ &= \underline{\$13,577.55} \end{aligned}$	<table border="0"> <tr> <td>1000000</td> <td>+/-</td> <td>FV</td> </tr> <tr> <td>4</td> <td></td> <td>I</td> </tr> <tr> <td>35</td> <td></td> <td>N</td> </tr> <tr> <td>PMT</td> <td></td> <td>\$13,577.32</td> </tr> </table>	1000000	+/-	FV	4		I	35		N	PMT		\$13,577.32
1000000	+/-	FV											
4		I											
35		N											
PMT		\$13,577.32											

6. Funding a retirement goal. Owen Freeman wishes to have \$800,000 in a retirement fund 20 years from now. He can create the retirement fund by making a single lump-sum deposit today.

a. If upon retirement in 20 years, Owen plans to invest \$800,000 in a fund that earns 4 percent, what is the maximum annual withdrawal he can make over the following 15 years?

b. How much would Owen need to have on deposit at retirement in order to withdraw \$35,000 annually over the 15 years if the retirement fund earns 4 percent?

c. To achieve his annual withdrawal goal of \$35,000 calculated in part b, how much more than the amount calculated in part a must Owen deposit today in an investment earning 4 percent annual interest

a. Jamal can withdraw \$71,955.39 at the end of every year for 15 years.

PV	=	PMT x PVA factor 4%, 15 yrs.	800000	+/-	PV
PMT	=	PV ÷ PVA factor 4%, 15 yrs.	4		I
	=	\$800,000 ÷ 11.118	15		N
	=	<u>\$71,955.39</u>	PMT		<u>\$71,952.88</u>

b. To withdraw \$35,000 at the end of every year for 15 years, Jamal would need a retirement fund of \$389,130.

PV	=	PMT x PVA factor 4%, 15 yrs.	35000	+/-	PMT
	=	\$35,000 x 11.118	4		I
	=	<u>\$389,130</u>	15		N
			PV		<u>\$389,143.56</u>

c. Jamal will not need to invest any additional funds because the original investment of \$800,000 will meet his retirement needs.

Answers to Test Yourself Questions

The following are solutions to “Test Yourself Questions” found on the student website, PFIN 6 Online, at www.cengagebrain.com. You can find the questions on the instructor site as well.

2-1 What are the two types of personal financial statements? What is a budget, and how does it differ from personal financial statements? What role do these reports play in a financial plan?

Personal financial statements provide important information needed in the personal financial planning process. The balance sheet describes your financial condition [that is what assets and liabilities you have] at one point in time. The income and expense statement measures financial

performance [cash surplus or deficit] over a given time period typically monthly or annually. Budgets help you plan your future spending. The budget is a statement of the future income or expenses that will result from your financial plan. By comparing the actual income and expenses to the budget you can see when your plan needs to be modified. Together these statements give you information needed for your financial planning process.

2-2 Describe the balance sheet, its components, and how you would use it in personal financial planning. Differentiate between investments and real and personal property.

The *balance sheet* summarizes your financial position by showing your assets (what you own listed at fair market value), your liabilities (what you owe), and your net worth (the difference between assets and liabilities) at a given point in time. With a balance sheet, you know whether your assets are greater than your liabilities, and by comparing balance sheets for different time periods, you can see whether your net worth is growing.

Investments are intangible assets that have market value [such as stock] and you hold in hopes of future increases in value and future income. *Real property* is an asset that is affixed to the ground, example is a house. *Personal property* is tangible property that is not real property, example is a car or furniture.

2-3 What is the balance sheet equation? Explain when a family may be viewed as technically insolvent.

The *balance sheet equation* is:

$$\text{Net Worth} = \text{Total Assets} - \text{Total Liabilities}$$

A family is *technically insolvent* when their net worth is less than zero. This indicates that the amount of their total liabilities is greater than the fair market value of their total assets.

2-4 Explain two ways in which net worth could increase (or decrease) from one period to the next.

There are basically two ways to achieve an *increase in net worth*. First, one could prepare a budget for the pending period to specifically provide for an increase in net worth by acquiring more assets and/or paying down debts. This is accomplished by planning and requires strict control of income and expenses. A second approach would be to forecast expected increases in the market value of certain assets—primarily investment and tangible property assets. If the market value of the assets increased as expected and liabilities remained constant or decreased, an increase in net worth would result. (Note: Decreases in net worth would result from the opposite strategies/occurrences.) Of course that is also the old fashion way, you inherit wealth.

2-5 What is an income and expense statement? What role does it serve in personal financial planning?

The *income and expense statement* captures the result of financial activities that you hoped would increase your wealth summarized for a month or a year. In personal financial planning, the statement permits comparison of actual results to the budgeted values to help you evaluate your financial plan.

2-6 Explain what cash basis means in this statement: “An income and expense statement should be prepared on a cash basis.” How and where are credit purchases shown when statements are prepared on a cash basis?

The cash basis only records income that is received in cash or expenses that are paid in cash during the period. It ignores any amount that you are due [receivables] or that you will have to pay in the future [liabilities]. Payments on liabilities should be divided into payment of interest and payments on principle, but both are listed as expenses on a cash statement. Obviously the cash statement does not give a complete picture of a person income or expenses, but since most individuals do not have receivables and their liabilities are managed with monthly payments, the cash statement gives good information for financial planning.

2-7 Distinguish between fixed and variable expenses, and give examples of each.

Fixed expenses are contractual, predetermined expenses that are made each period, such as rent, mortgage and loan payments, or insurance premiums. *Variable* expenses change each period. These include food, utilities, charge card bills, and entertainment.

2-8 Is it possible to have a cash deficit on an income and expense statement? If so, how?

Yes, a *cash deficit* appears on an cash basis income and expense statement whenever the period's expenses exceed income. Deficit spending is made possible by using up an asset, such as taking money out of savings, selling an asset such as an investment, or incurring more debt, such as charging a purchase on a credit card.

2-9 How can accurate records and control procedures be used to ensure the effectiveness of the personal financial planning process?

Before you can set realistic goals, develop your financial plans, or effectively manage your money, you must take stock of your current financial situation. Without accurate records, you do not have the needed information to make your financial decisions.

2-10 Describe some of the areas or items you would consider when evaluating your balance sheet and income and expense statement. Cite several ratios that could help in this effort.

Ratios are used to relate items from the financial statements. These ratios provide useful information for specific decisions. From the Balance sheet:

Current Ratio: Current Assets divided by Current Liabilities, useful for short term credit decisions

Solvency ratio: Total net worth divided by total assets; measures the degree of exposure to insolvency

Liquidity ratio: Total liquid assets divided by total current debts; measures the ability to pay current debts.

From the Income Statement:

Savings ratio: Cash surplus divided by income after taxes, indicates the portion of income you chose to save

Debt service ratio: Total monthly loan payments divided by Monthly gross (before tax) income, provides a measure of the ability to pay debts promptly

Return on Equity: Cash Surplus (a measure of net income) divided by New Worth, provides a measure of how well you managed your wealth.

2-11 Describe the cash budget and its three parts. How does a budget deficit differ from a budget surplus?

A *cash budget* is a summary of estimated cash income and cash expenses for a specific time period, typically a year. The three parts of the cash budget include: the *income* section where all expected income is listed; the *expense* section where expected expenses are listed by category; and the surplus or deficit section where the cash surplus or deficit is determined both on a month-by-month basis and on a cumulative basis throughout the year. A *budget deficit* occurs when the planned expenses for a period exceed the anticipated income in that same period. A *budget surplus* occurs when the income for the period exceeds its planned expenses.

2-12 The Gonzales family has prepared their annual cash budget for 2016. They have divided it into 12 monthly budgets. Although only 1 monthly budget balances, they have managed to balance the overall budget for the year. What remedies are available to the Gonzales family for meeting the monthly budget deficits?

Monthly deficits may be handled by shifting expenses to a later month or income to an earlier month. If that is not possible, the Gonzales family may withdraw an amount from savings or borrow a short-term loan to get the months in balance. Another alternative is to increase income perhaps with a second job or move to a higher paying job.

2-13 Why is it important to analyze actual budget surpluses or deficits at the end of each month?

By examining end-of-month budget balances, and the associated surpluses or deficits for all accounts, a person can initiate any required corrective actions to assure a balanced budget for the year. Surpluses are not problematic. Deficits normally require spending adjustments during subsequent months to bring the budget into balance by year end.

2-14 Why is it important to use time value of money concepts in setting personal financial goals?

A dollar today and a dollar in the future will be able to purchase different amounts of goods and services, because if you have a dollar today, you can invest it and it will grow to more than a dollar in the future. At the same time, inflation works against the dollar, because rising prices erode its purchasing power. *Time value of money* concepts help us quantify these changes in dollar values so that we can plan the amount of money needed at certain points in time in order to fulfill our personal financial goals.

2-15 What is compounding?

Interest is earned over a given period of time. When interest is compounded, this given period of time is broken into segments, such as months. Interest is then calculated one segment at a time, with the interest earned in one segment added back to become part of the principal for the next time segment. Thus, in *compounding*, your money earns interest on interest.

2-16 When might you use future value? Present value? Give specific examples.

Future value calculations show how much an amount will grow over a given time period. Future value is used to evaluate investments and to determine how much to save each year to accumulate a given future amount, such as the down payment on a house or for a child's college education. *Present value* concepts, the value today of an amount that will be received in the future, help you calculate how much a future cash receipt will be worth today, analyze investments, and determine loan payments.

Solutions to Online Bonus Personal Financial Planning Exercises

The following are solutions to “Bonus Personal Financial Planning Exercises” found on the student website, PFIN 6 Online, at www.cengagebrain.com. You can find these questions on the instructor site as well.

1. **Preparing Financial Statements: Chad Livingston is preparing his balance sheet and income and expense statement for the year ending June 30, 2016. He is having difficulty classifying six items and asks for your help. Which, if any, of the following transactions are assets, liabilities, income, or expense items?**

- a. **Chad rents a house for \$1,350 a month.**

The monthly rent is a monthly expense. The payment will reduce an asset, Cash.

- b. **On June 21, 2016, Chad bought diamond earrings for his wife and charged them using his MasterCard. The earrings cost \$900, but he hasn't yet received the bill.**

The purchase will result in a new asset, personal property for \$900. Since he purchase using a credit card, his current liabilities also increase by \$900.

- c. **Chad borrowed \$3,500 from his parents last fall, but so far, he has made no payments to them.**

Since no loan payments were made during the period, a corresponding expense would not appear. Whether or not the “loan” is a real loan or a gift from the parents is a question of fact to be determined. If real loan, the balance sheet will list a liability of \$3,500. If a gift, net worth will increase by the amount of cash received.

- d. **Chad makes monthly payments of \$225 on an installment loan; about half of it is interest, and the balance is repayment of principal. He has 20 payments left, totaling \$4,500.**

The income statement will show an expense: payment of loan \$225 per month times 12 months, a total for the year of \$2,700. When a balance sheet is prepared, the loan balance will be reduced by half of the 225 per month which represent payment of principal.

- e. **Chad paid \$3,800 in taxes during the year and is due a tax refund of \$650, which he hasn't yet received.**

The payment of taxes is an expense recorded as paid, typically monthly or when paycheck is received. The refund is not recorded on the income statement until it is received. The receivable is not recorded on a cash basis balance sheet.

- f. **Chad invested \$2,300 in some common stock.**

The cash asset goes down and the asset investment goes up. The investment will appear on the balance sheet.

- 2. Projecting Financial Statements: Put yourself 10 years into the future. Construct a fairly detailed and realistic balance sheet and income and expense statement reflecting what you would like to achieve by that time.**

While everyone's financial statements will differ based on their own expectation of the future, each should have similar elements such as: assets like a home, automobiles and investments; liabilities like a mortgage, an auto loan, and consumer debt; and a positive net worth. The statement of income and expense should reflect income from a job or business, investment income, and expenses for items such as home repair and operation, debt payments, savings, taxes, and insurance.

3. Preparing Personal Balance Sheet: Use Worksheet 2.1.

This problem has been included in the text as problem 2 in Chapter 2. See solution above.

4. Preparing Income and Expense Statement: Use Worksheet 2.2.

This problem has been included in the text as problem 3 in Chapter 2. See solution above.

5. Preparing Cash Budget: Richard and Elizabeth Walker are preparing their 2017 cash budget. Help the Walkers reconcile the following differences, giving reasons to support your answers.

This problem has been included in the text as problem 4 in Chapter 2. See solution above.

6. Identifying Missing Budget Items: Here is a portion of Chuck Schwartz's budget record for April 2016. Fill in the blanks in columns 5 and 6. Note the answers are included. They may be deleted if you wish to use in classroom.

Item (1)	Amount Budgeted (2)	Amount Spent (3)	Beginning Balance (4)	Monthly Surplus (Deficit) (5)	Cumulative Surplus (Deficit) (6)
Rent	\$550	\$575	\$50	-\$25	\$25
Utilities	150	145	15	5	20
Food	510	475	-45	35	-10
Auto	75	95	-25	-20	-45
Recreation and Entertainment	100	110	-50	-10	-60

7. Use Worksheet 2.3. Prepare a record of your income and expenses for the last 30 days; then prepare a personal cash budget for the next three months. (Use the format in Worksheet 2.3, but fill out only three months and the Total column.) Use the cash budget to control and regulate your expenses during the next month. Discuss the impact of the budget on your spending behavior, as well as any differences between your expected and actual spending patterns.

This question requires a personal response that will differ for each student. Therefore, a specific example has not been provided. However, the Critical Thinking cases below provide several examples of possible answers to this question; it is recommended that the cases be examined in conjunction with this question.

The question provides an effective means to involve the student in the budgeting process. Most students [as well as most people] are somewhat amazed when they find out how they have actually been spending their money. Before assigning this question, it is interesting to ask the students to estimate how they actually spend their money. A comparison of their estimates with the actual spending records typically reflects the unconscious manner in which they may be spending. Most students will find that the use of a budget to control and regulate expenses allows them to make more meaningful and satisfying expenses.

PLEASE NOTE: Problems 8 through 10 deal with time value of money, and solutions using both the tables and the financial calculator will be presented. The factors are taken from the tables as follows: future value—Appendix A; future value annuity—Appendix B; present value—Appendix C; present value annuity—Appendix D. If using the financial calculator, set on *End Mode* and *1 Payment/Year*. The +/- indicates the key to change the sign of the entry, in these instances from positive to negative. This keystroke is required on some financial calculators in order to make the programmed equation work. Other calculators require that a "Compute" key be pressed to attain the answer.

8. Calculating present and future values: Use future or present value techniques to solve the following problems.

- a. Starting with \$15,000, how much will you have in 10 years if you can earn 6 percent on your money? If you can earn only 4 percent?**

FV	=	PV x FV factor 6%, 10 yrs.	15000	+/-	PV
	=	\$15,000 x 1.791	6		I
	=	\$26,865	10		N
			FV		\$26,862.72
FV	=	PV x FV factor 4%, 10 yrs.	15000	+/-	PV
	=	\$15,000 x 1.480	4		I
	=	\$22,200	10		N
			FV		\$22,203.66

- b. If you inherited \$45,000 today and invested all of it in a security that paid a 7 percent rate of return, how much would you have in 25 years?**

FV	=	PV x FV factor 7%, 25 yrs.	45000	+/-	PV
	=	\$45,000 x 5.427	7		I
	=	<u>\$244,215</u>	25		N
			FV		<u>\$244,234.47</u>

- c. If the average new home costs \$275,000 today, how much will it cost in 10 years if the price increases by 5 percent each year?**

FV	=	PV x FV factor 5%, 10 yrs.	275000	+/-	PV
	=	\$275,000 x 1.629	5		I
	=	<u>\$447,975</u>	10		N
			FV		<u>\$447,946.02</u>

- d. You think that in 15 years, it will cost \$212,000 to provide your child with a 4-year college education. Will you have enough if you take \$70,000 today and invest it for the next 15 years at 5 percent? If you start from scratch, how much will you have to save each year to have \$212,000.**

No, you will have \$145,530, which is less than your \$212,000 goal.

FV	=	PV x FV factor 5%, 15 yrs.	70000	+/-	PV
	=	\$70,000 x 2.079	5		I
	=	<u>\$145,530</u>	15		N
			FV		<u>\$145,524.97</u>

You will need to deposit \$10,587.30 at the end of each year for 15 years in order to reach the \$212,000 goal.

PMT	=	FV ÷ FVA factor 4%, 15 yrs.	212000	+/-	FV
	=	\$212,000 ÷ 20.024	4		I
	=	<u>\$10,587.30</u>	15		N
			PMT		<u>\$10,587.51</u>

- e. If you can earn 4 percent, how much will you have to save each year if you want to retire in 35 years with \$1 million?

You will need to invest \$13,577.55 at the end of each year at a rate of 4% for the next 35 years in order to retire with \$1 million.

PMT	=	FV ÷ FVA factor 4%, 35 yrs.	1000000	+/-	FV
	=	\$1,000,000 ÷ 73.651	4		I
	=	<u>\$13,577.55</u>	35		N
			PMT		\$13,577.32

- f. You plan to have \$750,000 in savings and investments when you retire at age 60. Assuming that you earn an average of 8 percent on this portfolio, what is the maximum annual withdrawal you can make over a 25-year period of retirement?

You will be able to withdraw \$70,257.61 at the end of each year for 25 years if you retire with \$750,000 invested at 8%.

PMT	=	PV ÷ PVA factor 8%, 25 yrs.	750000	+/-	PV
	=	\$750,000 ÷ 10.675	8		I
	=	<u>\$70,257.61</u>	25		N
			PMT		\$65,927.99

9. Quantifying and Evaluating a Saving Goal: Over the past several years, Catherine Lee has been able to save regularly. As a result, she has \$54,188 in savings and investments today. She wants to establish her own business in five years and feels she will need \$100,000 to do so.

- a. If she can earn 4 percent on her money, how much will her \$54,188 in savings/investments be worth in five years? Will Catherine have the \$100,000 she needs? If not, how much more money will she need?

If Catherine can earn 4% on her money, \$54,188 will be worth about \$65,947 in 5 years:

FV	=	PV x FV factor 4%, 5 yrs.	54188	+/-	PV
	=	\$54,188 x 1.217	4		I
	=	<u>\$65,946.80</u>	5		N
			FV		<u>\$65,927.99</u>

No, she will fall short by about \$34,053.

- b. Given your answer to part a, how much will Catherine have to save each year over the next five years to accumulate the additional money? Assume that she can earn interest at a rate of 4 percent.**

b. Assuming that Catherine adds a payment to her savings at the end of each year for the next five years so that the fifth payment comes at the end of the time period, she would have to save \$5,077.55 per year. This calculation is as follows:

FV	=	PMT x FVA factor 4%, 5 yrs.	34072	+/-	FV
PMT	=	FV ÷ FVA factor 4%, 5 yrs.	4		I
	=	\$34,053 ÷ 5.416	5		N
	=	<u>\$6,287.52</u>	PMT		<u>\$6,290.62</u>

- c. If Catherine can afford to save only \$4,000 a year, then given your answer to part a, will she have the \$100,000 she needs to start her own business in five years?**

If Catherine saves only \$4,000 per year she would have an additional \$21,664 for a total of \$87,611 (\$65,947 + \$21,664) and will fall \$12,389 short of her \$100,000 goal.

FV	=	PMT x FVA factor 4%, 5 yrs.	4000	+/-	PMT
	=	\$4,000 x 5.416	4		I
	=	<u>\$21,664</u>	5		N
			FV		<u>\$21,665.29</u>

10. Funding a Retirement Goal: Chris Jones wishes to have \$800,000 in a retirement fund 20 years from now. He can create the retirement fund by making a single lump-sum deposit today.

a. If he can earn 6 percent on his investments, how much must Chris deposit today to create the retirement fund? If he can earn only 4 percent on his investments? Compare and discuss the results of your calculations.

Note what a difference of 2% makes over the 20-year time period! You would have to initially invest about 46% more money to end up with the same future value $[(\$364,800 - \$249,600) \div \$249,600]$.

PV	=	FV x PV factor 6%, 20 yrs.	800000	+/-	FV
	=	\$800,000 x 0.312	6		I
	=	<u>\$249,600</u>	20		N
			PV		<u>\$249,443.78</u>

If Chris only earns 4%, he will need another \$115,666 to meet his goal.

PV	=	FV x PV factor 4%, 20 yrs.	800000	+/-	FV
	=	\$800,000 x 0.456	4		I
	=	<u>\$364,800</u>	20		N
			PV		<u>\$365,109.56</u>

b. If, upon retirement in 20 years, Chris plans to invest the \$800,000 in a fund that earns 4 percent, what is the maximum annual withdrawal he can make over the following 15 years?

Chris can withdraw \$71,955.39 at the end of every year for 15 years.

PV	=	PMT x PVA factor 4%, 15 yrs.	800000	+/-	PV
PMT	=	PV ÷ PVA factor 4%, 15 yrs.	4		I
	=	\$800,000 ÷ 11.118	15		N
	=	<u>\$71,955.39</u>	PMT		<u>\$71,952.88</u>

b. How much would Chris need to have on deposit at retirement to annually withdraw \$35,000 over the 15 years if the retirement fund earns 4 percent?

To withdraw \$35,000 at the end of every year for 15 years, Chris would need a retirement fund of \$389,130.

PV	=	PMT x PVA factor 4%, 15 yrs.	35000	+/-	PMT
	=	\$35,000 x 11.118	4		I
	=	<u>\$389,130</u>	15		N
			PV		<u>\$389,143.56</u>

d. To achieve his annual withdrawal goal of \$35,000 calculated in part c, how much more than the amount calculated in part a must Chris deposit today in an investment earning 4 percent annual interest?

Chris will not need to invest any additional funds because the original investment will meet his retirement needs.

11. Funding a College Goal: Dan Weaver wants to set up a fund to pay for his daughter's education. In order to pay her expenses, he will need \$23,000 in four years, \$24,300 in five years, \$26,000 in six years, and \$28,000 in seven years. If he can put money into a fund that pays 4 percent interest, what lump-sum payment must Dan place in the fund today to meet his college funding goals?

Dan needs \$81,459.60 today to fund college.

$$\begin{aligned} \text{PV} &= \text{FV} \times \text{PV factor } 4\%, 4 \text{ yrs.} \\ &= \$23,000 \times 0.855 \\ &= \underline{\underline{\$19,665}} \end{aligned}$$

$$\begin{aligned} \text{PV} &= \text{FV} \times \text{PV factor } 4\%, 5 \text{ yrs.} \\ &= \$24,300 \times 0.822 \\ &= \underline{\underline{\$19,974.60}} \end{aligned}$$

$$\begin{aligned} \text{PV} &= \text{FV} \times \text{PV factor } 4\%, 6 \text{ yrs.} \\ &= \$26,000 \times 0.790 \\ &= \underline{\underline{\$20,540}} \end{aligned}$$

$$\begin{aligned} \text{PV} &= \text{FV} \times \text{PV factor } 4\%, 7 \text{ yrs.} \\ &= \$28,000 \times 0.760 \\ &= \underline{\underline{\$21,280}} \end{aligned}$$

Add $\$19,665 + \$19,974.60 + \$20,540 + \$21,280 = \$81,459.60$

Using a financial calculator, specifically a TI BAII+

CFO = 0

C01 = 0, F01 = 3

C02 = 23000, F02 = 1

C03 = 24300, F03 = 1

C04 = 26000, F04 = 1

C05 = 28000, F05 = 1

I = 4

CPT NPV = \$81,459.21

12. Calculating a Future Value of an Investment: Jessica Wright has always been interested in stocks. She has decided to invest \$2,000 once every year into an equity mutual fund that is expected to produce a return of 6 percent a year for the foreseeable future. Jessica is really curious how much money she can reasonably expect her investment to be worth in 20 years. What would you tell her?

It should be noted, that you are calculating this amount using an expected rate of return. Should the return be higher any given years, the value will be more. Should the return be lower any given years, the value will be less.

FV	=	PMT x FVA factor 6%, 20 yrs.	2000	+/-	PMT
	=	\$2,000 x 36.786	6		I
	=	<u>\$73,572</u>	20		N
			FV		\$73,571.18

Solutions to Critical Thinking Cases

The following are solutions to “Critical Thinking Cases” found on the student website, PFIN 6 Online, at www.cengagebrain.com. You can find these questions on the instructor site as well.

2.1 The Becker’s Version of Financial Planning

Terry and Evelyn Becker are a married couple in their mid-20s. Terry has a good start as an electrical engineer and Evelyn works as a sales representative. Since their marriage four years ago, Terry and Evelyn have been living comfortably. Their income has exceeded their expenses, and they have accumulated an enviable net worth. This includes \$10,000 that they have built up in savings and investments. Because their income has always been more than enough for them to have the lifestyle they desire, the Beckers have done no financial planning.

Evelyn has just learned that she’s two months pregnant. She’s concerned about how they’ll make ends meet if she quits work after their child is born. Each time she and Terry discuss the matter, he tells her not to worry because “we’ve always managed to pay our bills on time.” Evelyn can’t understand his attitude because her income will be completely eliminated. To convince Evelyn that there’s no need for concern, Terry points out that their expenses last year, but for the common stock purchase, were about equal to his take-home pay. With an anticipated promotion and an expected 10 percent pay raise, his income next year should exceed this amount. Terry also points out that they can reduce luxuries (trips, recreation, and entertainment) and can always draw down their savings or sell some of their stock if they get in a bind. When Evelyn asks about the long-run implications for their finances, Terry says there will be “no problems” because his boss has assured him that he has a bright future with the engineering firm. Terry also emphasizes that Evelyn can go back to work in a few years if necessary.

Despite Terry’s arguments, Evelyn feels that they should carefully examine their financial condition in order to do some serious planning. She has gathered the following financial information for the year ending December 31, 2016:

Salaries	Take-home Pay	Gross Salary
<i>Terry</i>	<i>\$52,500</i>	<i>\$76,000</i>
<i>Evelyn</i>	<i>29,200</i>	<i>42,000</i>
Item	Amount	
<i>Food</i>	<i>\$ 5,902</i>	
<i>Clothing</i>	<i>2,300</i>	
<i>Mortgage payments, including property taxes of \$1,400</i>	<i>11,028</i>	
<i>Travel and entertainment card balances</i>	<i>2,000</i>	
<i>Gas, electric, water expenses</i>	<i>1,990</i>	
<i>Household furnishings</i>	<i>4,500</i>	
<i>Telephone</i>	<i>640</i>	
<i>Auto loan balance</i>	<i>4,650</i>	
<i>Common stock investments</i>	<i>7,500</i>	
<i>Bank credit card balances</i>	<i>675</i>	

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<i>Federal income taxes</i>	<i>22,472</i>
<i>State income tax</i>	<i>5,040</i>
<i>Social security contributions</i>	<i>9,027</i>
<i>Credit card loan payments</i>	<i>2,210</i>
<i>Cash on hand</i>	<i>85</i>
<i>2012 Nissan Sentra</i>	<i>10,500</i>
<i>Medical expenses (unreimbursed)</i>	<i>600</i>
<i>Homeowner's insurance premiums paid</i>	<i>1,300</i>
<i>Checking account balance</i>	<i>485</i>
<i>Auto insurance premiums paid</i>	<i>1,600</i>
<i>Transportation</i>	<i>2,800</i>
<i>Cable television</i>	<i>680</i>
<i>Estimated value of home</i>	<i>185,000</i>
<i>Trip to Europe</i>	<i>5,000</i>
<i>Recreation and entertainment</i>	<i>4,000</i>
<i>Auto loan payments</i>	<i>2,150</i>
<i>Money market account balance</i>	<i>2,500</i>
<i>Purchase of common stock</i>	<i>7,500</i>
<i>Addition to money market account</i>	<i>500</i>
<i>Mortgage on home</i>	<i>148,000</i>

Critical Thinking Questions

- 1. Using this information and Worksheets 2.1 and 2.2, construct the Becker's balance sheet and income and expense statement for the year ending December 31, 2016.**

As discussed above, the \$2,210 credit card payment is not recorded as an expense on the income statement. It is a payment of a liability and as such only impacts the balance sheet to reduce the unpaid liability. From the information provided, the balances listed on the balance sheet are after the \$2,210 payment has been made.

Critical Thinking 2-1 part 1							
Balance Sheet							
Names(s) Terry and Evelyn Becker				Date	31-Dec-16		
Assets				Liabilities and Net Worth			
Liquid Assets:				Current Libaiblities			
Cash on hand		\$ 85.00		Utilities			
Cash in checking		485.00		Rent			
Savings accounts				Insurance premiums			
				Taxes			
Money market funds and deposits		2,500.00		Medical/dental bills			
Certificates of deposit <1 yr to maturity				Repair bills			
Total Liquid Assets		\$ 3,070.00		Bank credit card balances		675.00	
				Department store credit card balances			
Investments				Travel and entertainment card balances		2,000.00	
Stocks		\$ 7,500.00		Gas and other credit balances			
Bonds				Bank line of credit balances			
				Other current liabilities			
Certificates of deposit <1 yr to maturity							
Mutual funds							
Real estate				Total Current Liabilities		\$ 2,675.00	
Retirement funds, IRA				Long-term Liabilities			
Other				Primary residence mortgage		\$ 148,000.00	
Total Investments		\$ 7,500.00		Real estate investment mortgage			
Real Property				Autos loans		4,650.00	
Primary residence		\$ 185,000.00		Appliance/furniture loans			
Second home				Home improvement loans			
Other				Single-payment loans			
Total Real Property		\$ 185,000.00		Education loans			
Personal Property				Margin loans used to purchase securities			
Autos		\$ 10,500.00		Other long-term liabilities			
Autos							
Recreational vehicles							
Household furnishings		4,500.00		Total Long-Term Liabilities		\$ 152,650.00	
Jewelry and artwork							
Other				Total Liabilities		\$ 155,325.00	
Other							
Total Personal Property		\$ 15,000.00		Net Worth		\$ 55,245.00	
Total Assets		\$ 210,570.00		Total Liabilities and Net Worth		\$ 210,570.00	

Critical Thinking 2.1-Part 1 Worksheet 2.2

INCOME AND EXPENSE STATEMENT			
Name(s)	Terry and Evelyn Becker		
For the	Year	Ended	December 31, 2016
Income			
Wages and salaries	Name: Terry	\$	76,000.00
	Name: Evelyn		42,000.00
	Name:		
Self-employment income			
Bonuses and commissions			
Investment income	Interest received		
	Dividends received		
	Rents received		
	Sale of securities		
	Other		
Pensions and annuities			
Other income			
(I) Total Income			\$ 118,000.00
Expenses			
Housing	Rent/mortgage payment (include insurance and taxes, if applicable)	\$	11,028.00
	Repairs, maintenance, improvements		
Utilities	Gas, electric, water		1,990.00
	Phone		640.00
	Cable TV and other		680.00
Food	Groceries		5,902.00
	Dining out		
Transportation	Auto loan payments		2,150.00
	License plates, fees, etc.		
	Gas, oil, repairs, tires, maintenance		2,800.00
Medical	Health, major medical, disability insurance (payroll deductions or not provided by employer)		
	Doctor, dentist, hospital, medicines		600.00
Clothing	Clothes, shoes, and accessories		2,300.00
Insurance	Homeowner's (if not covered by mortgage payment)		1,300.00
	Life (not provided by employer)		
	Auto		1,600.00
Taxes	Income and social security		36,539.00
	Property (if not included in mortgage)		
Appliances, furniture, and other major purchases	Loan payments		
	Purchases and repairs		
Personal care	Laundry, cosmetics, hair care		
Recreation and entertainment	Vacations		5,000.00
	Other recreation and entertainment		4,000.00
Other items	Purchase of stock		7,500.00
	Addition to money market account		500.00
(II) Total Expenses			\$ 84,529.00
CASH SURPLUS (OR DEFICIT) [(I)-(II)]			\$ 33,471.00

2. Comment on the Becker's financial condition regarding (a) solvency, (b) liquidity, (c) savings, and (d) ability to pay debts promptly. If the Becker's continue to manage their finances as described, what do you expect the long-run consequences to be? Discuss.

- a. Solvency Ratio: This ratio shows the degree of exposure to insolvency or how much "cushion" you have as protection against insolvency. The calculation for her solvency ratio is as follows:

$$\text{Solvency Ratio} = \frac{\text{Total Net Worth}}{\text{Total Assets}} = \frac{\$55,245}{\$210,570} = 26.24\%$$

A solvency ratio of 26% is on the low side. In their assets decline in value by 26%, the Beckers would be insolvent. Not good.

- b. Liquidity Ratio:

$$\text{Liquidity ratio} = \frac{\text{Liquid Assets}}{\text{Total Current Debts}} = \frac{\$ 3,070}{\$ 2,675} = 1.15$$

The liquidity ratio indicates the Becker's ability to pay current debts. A ratio of greater than 1 is acceptable, but higher would be better.

- c. Savings

$$\text{Savings ratio} = \frac{\text{Cash Surplus}}{\text{Income after tax}} = \frac{\$ 33,471}{\$ 81,700} = 40.97\%$$

The savings ratio indicates what the Becker's are doing with their income. Saving 41% is excellent [average for American families is about 8%]. This rate will overshadow the previous lackluster ratios.

- d. Debt Service ratio = $\frac{\text{Monthly loan payments}}{\text{Monthly Gross Income}} = \frac{\$1,282}{\$9,833} = 13.04\%$

The level of income is substantially covering their loan payments, thus assuming continued income, their debts are secured.

The Becker's income is sufficient to build a better Balance Sheet in the future so that their net worth should continue to grow. This is a two wage earner family. If one loses their job, that lost income will soon create problems since their current balance sheet does not have the assets to maintain their net worth for the future without the continuing income.

3. Critically evaluate the Becker's approach to financial planning. Point out any fallacies in Terry's arguments, and be sure to mention (a) implications for the long term, as well as (b) the potential impact of inflation in general and specifically on their net worth. What procedures should they use to get their financial house in order? Be sure to discuss the role that long- and short-term financial plans and budgets might play.

At this point, the key to their future is maintaining the two income family. Long term if both incomes continue, the Beckers will build their net worth. While inflation is a constant threat, the impact will be on their real property and large priced personal property. They have a car and a house, thus until those must be replaced, inflation will of less concerned to them. If inflation runs away, their jobs could be at risk and all bets are off for their future financial position. Preparing a budget will certainly help guide them to better understand where they are going to be at the end of the year.

With the birth of a child and Evelyn's quitting her job, the Becker's financial status will change. The information indicates that they are aware of the potential changes and that they think their future financial status will be secured. Though things do change. The loss of one income will require greater planning and monitoring of their expenses.