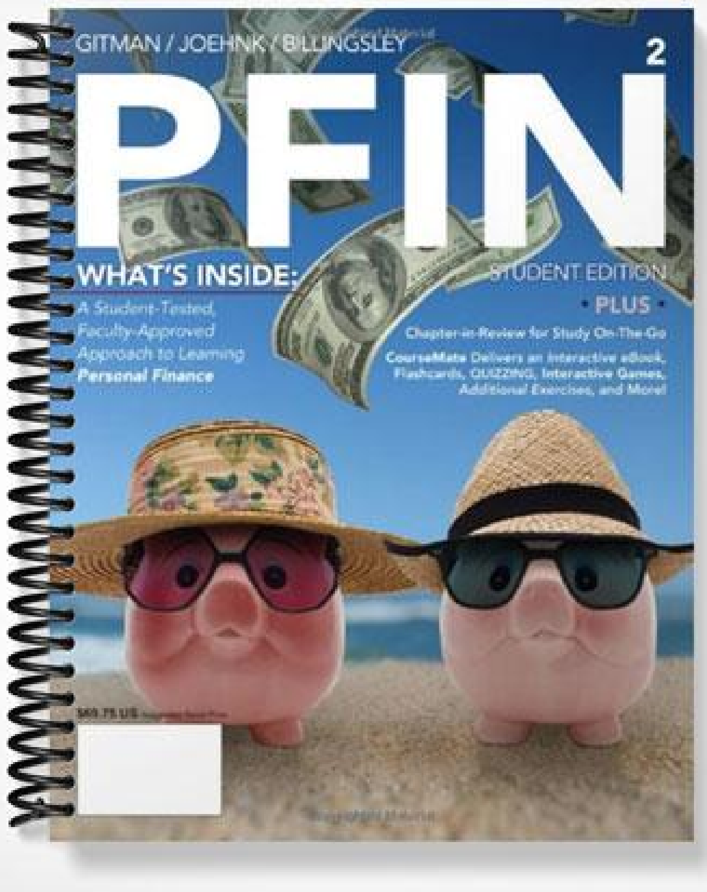
SOLUTIONS MANUAL



Chapter 2

Developing Your Financial Statements and Plans

Chapter Outline

Learning Goals

I. Mapping Out Your Financial Future
- A. The Role of Financial Statements in Financial Planning

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
- D. Balance Sheet Format and Preparation
- E. A Balance Sheet for Jerry and Liz Saunders

III. The Income and Expense Statement: What We Earn and Where It Goes
- A. Income: Cash In
- B. Expenses: Cash Out
- C. Cash Surplus (or Deficit)
- D. Preparing the Income and Expense Statement
- E. An Income and Expense Statement for Jerry and Liz Saunders

IV. Using Your Personal Financial Statements
- A. Keeping Good Records
  1. Organizing Your Records
- B. Tracking Financial Progress: Ratio Analysis
  1. Balance Sheet Ratios
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V. Cash In and Cash Out: Preparing and Using Budgets
- A. The Budgeting Process
  1. Estimating Income
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  3. Finalizing the Cash Budget
- B. Dealing with Deficits
- C. A Cash Budget for Jerry and Liz Saunders
- 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

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.

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 PFIN textbook chapter.

1. 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. The cash paid for the rent would decrease Tim's assets on the balance sheet. For the year, his rent expense would be $11,100 ($925 x 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 balance sheet as an asset—personal property. Although the earrings have not been paid for, by definition they are an asset owned by Tim. However, they should be listed at fair market value, which is probably less than the price paid due to the high markup on jewelry. When the $700 bill is received, it is listed as a current liability on the balance sheet. In the event that Tim signed a short-term contract to pay for the jewelry, this would also be recorded as a current liability on the balance sheet.

c. Assuming the loan proceeds were received during the year ending June 30, 2010, the $2,500 would be shown as an increase in “cash from loan proceeds" or an asset on the balance sheet. Since no loan payments were made during the period, an expense would not be recorded, but the obligation to repay the $2,500 would be shown as an increase in a liability on the balance sheet.

d. Assuming Tim made 12 payments during the year, Tim would decrease assets (or cash) on the balance sheet by $1,440 (12 x $120). Since half is for interest, $720 (or $1,440 ÷ 2) interest expense should be recorded on the income statement and half would reduce the obligation for the loan (which is a liability on the balance sheet.)

   If you consider the total 20 remaining payments, the unpaid principal of $1,200 (20 x $120/2) is a liability on the balance sheet. Since it appears that the loan payments will last longer than a year, the liability would be classified as a long-term liability rather than a current liability.

   The balance of the future payments in interest are not yet due and therefore should not appear on the financial statements.

   If the loan was used to purchase something of value, Tim would list the fair market value of the item purchased as an asset on his balance sheet.

e. The $2,900 of taxes paid would decrease assets (or cash) on the balance sheet and also should appear as an expense on the income statement for the period. However, since Tim uses cash basis accounting and the tax refund has not been received, it would not be recorded yet on any financial statement.

f. The investment in common stock would appear as a $1,600 decrease in assets (or cash) on the balance sheet and a $1,600 increase in "investments"(an asset) on the balance sheet; assuming that the stock is regularly traded, the $1,600 is the current fair market value of the stock.

2. a. Bill is correct in suggesting that only take-home pay be shown as income if the $1,083 ($5,000 – $3,917) in taxes is not shown as an expense. If they choose to show the tax expense, Nancy would be correct. Expressing income on an after-tax basis would probably be simpler and makes sense from a cash basis accounting standpoint.

b. By having an allowance for "fun money," the Thompsons 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 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.

3. a. [Note to instructors: The 7% factor is not presented in the Appendix.]

At the end of 25 years, your $25,000 investment would grow to $135,675 at a 7% return.

FV	=	PV x FV factor $_{7\%,25yrs.}$	25000	+/-	PV
	=	$25,000 x 5.427	7		I
	=	$135,675	25		N
			FV		$\boxed{\$135,685.82}$

b. At the end of 10 years the average new home, which costs $210,000 today, will cost $342,090 if prices go up at 5% per year.

FV	=	PV x FV factor $_{5\%,10yrs.}$	210000	+/-	PV
	=	$210,000 x 1.629	5		I
	=	$342,090	10		N
			FV		$\boxed{\$342,067.87}$

c. No, you will have approximately $58,075 less than your estimate of $214,000 (or 214,000 - $155,925).

FV	=	PV x FV factor $_{5\%,15yrs.}$	75000	+/-	PV
	=	$75,000 x 2.079	5		I
	=	$155,925	15		N
			FV		$\boxed{\$155,919.61}$

You will need to deposit $9,917.05 at the end of each year for 15 years in order to reach the $214,000 goal.

PMT	=	FV ÷ FVA factor $_{5\%,15yrs.}$	214000	+/-	FV
	=	$214,000 ÷ 21.578	5		I
	=	$9,917.51	15		N
			PMT		$\boxed{\$9,917.25}$

d. You will need to invest $11,071.71 at the end of each year at a rate of 5% for the next 35 years in order to retire with $1 million.

PMT	=	FV ÷ FVA factor $_{5\%,35yrs.}$	1000000	+/-	FV
	=	$1,000,000 ÷ 90.318	5		I
	=	$11,071.99	35		N
			PMT		$\boxed{\$11{,}071.71}$

4. a. Simon can withdraw $38,536.92 at the end of every year for 15 years.

PV	=	PMT x PVA factor $_{5\%,15yrs.}$	400000	+/-	PV
PMT	=	PV ÷ PVA factor $_{5\%,15yrs.}$	5		I
	=	$400,000 ÷ 10.38	15		N
	=	$38,535.65	PMT		$\boxed{\$38{,}536.92}$

b. To withdraw $35,000 at the end of every year for 15 years, Simon would need a retirement fund of $299,581.

PV	=	PMT x PVA factor $_{8\%,15yrs.}$	35000	+/-	PMT
	=	$35,000 x 8.560	8		I
	=	$299,600	15		N
			PV		$\boxed{\$299{,}581.75}$

c. Simon will not need to invest any additional funds because the $400,000.00 available at retirement will meet his needs.

Answers to Concept Check Questions

The following are solutions to "Concept Check Questions" found on the student website, CourseMate for PFIN 2, at www.cengagebrain.com. You can find the questions on the instructor site as well.

2-1. *Personal financial statements* provide important information needed in the personal financial planning process. The balance sheet describes your financial condition at one point in time, while the income and expense statement measures financial performance over a given time period. Budgets help you plan your future spending. These statements allow you to track and monitor your financial progress so you can set realistic goals and meet them.

2-2. 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 assets that are acquired to earn a return; they may consist of either real or personal property or financial assets. *Real property* is immovable: for example, land and anything fixed to it, like a building. *Personal property* is movable property—cars, furniture, jewelry, clothing, etc. Whether real or personal property is an investment depends on the character of the property: some you acquire with the expectation that the property will go up in value while other property may be expected to go down in value.

2-3. The *balance sheet equation* is:

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

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. 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.)

2-5. The *income and expense statement* captures the various financial activities that have occurred over time, normally over the course of a month or a year. In personal financial planning, the statement permits comparison of actual results to the budgeted values.

2-6. The term *cash basis* indicates that only items of actual cash income and cash expense within the given period are included on the statement. For example, if you are due to receive a payment for work you have done, you do not count that amount as income until you actually receive it. A credit purchase becomes a liability on the balance sheet as soon as the debt is incurred. However, credit purchases are shown on the income statement only when payments on these liabilities are actually made. (Also, if a payment-in-full was not made, only that amount actually paid to reduce the liability is shown on the statement.) These cash payments would be treated as *expenses* because they represent disbursements of cash.

2-7. *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. Yes, a *cash deficit* appears on an 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, or incurring more debt, such as charging a purchase on a credit card.

2-9. *Accurate records* are important in the personal financial planning process. Such records help you manage and control your financial affairs, including controlling income and spending, preparing financial statements, filing tax returns, and planning future spending. A sophisticated *financial record keeping and control system* includes: (1) setting up a record book, (2) recording actual income and expenses, (3) balancing accounts periodically, (4) controlling budget expenses, and (5) balancing the books and preparing year-end financial statements.

2-10. When *evaluating one's balance sheet*, primary concern should be devoted to the net worth figure since it represents a person's wealth at a given point in time. Attention should also be given to the level of various assets and liabilities to determine whether their level and mix is consistent with one's financial goals.

In *evaluating one's income and expense sta*tement, the primary concern should be whether there is a cash surplus or deficit. Consistently having a cash surplus on the income statement means that one's net worth is growing on the balance sheet, because the surplus remaining from one period will then be available to either increase one's assets or decrease one's liabilities.

It is possible to use a number of ratios to evaluate a balance sheet. However, the solvency ratio and the liquidity ratio are most frequently used. The *solvency ratio* relates total net worth to total assets. It shows, in percentage terms, the degree of market value decline in total assets, which a family could absorb before becoming technically insolvent. This ratio is a good indicator of one's exposure to potential financial problems. The *liquidity ratio* relates liquid assets to total current debts. It measures a family's ability to pay current debts and provides an estimate of their ability to meet obligations in the event their income is curtailed.

2-11. 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. Two remedies are available for the McDonald family. They may be able to transfer expenses from months in which budget deficits occur to the month in which the budget surplus exists, or conversely, to transfer income from the month with a surplus to the months with deficits. Another alternative is to use savings, investments, or borrowing to cover temporary deficits. The McDonalds might also want to consider increasing their income, at least temporarily, by getting a "moonlighting" job.

2-13. 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. 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. 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.

The *rule of 72* is a quick way to approximate how long it will take for an investment to double in value. Divide 72 by the percentage rate you are earning on your investment, and the answer will be approximately how many years it will take for your money to double. For example, if your investment is earning 8%, divide 72 by 8 to see that in approximately 9 years your money will double.

2-16. *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 to deposit today in order to have enough money to retire comfortably, 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, CourseMate for PFIN 2, at www.cengagebrain.com. You can find these questions on the instructor site as well.

1. 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.

2. See the following page for Mary Sky's balance sheet.

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

$$\text{Solvency Ratio} = \frac{\text{Total Net Worth}}{\text{Total Assets}} = \frac{\$27{,}550}{\$84{,}350} = 32.66\%$$

This indicates that Ms. Sky could withstand about a 33% 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 Ms. Sky'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:

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

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.

Problem 2—Worksheet 2.1

BALANCE SHEET							
Name(s)	Mary Sky			Date		June 30, 2010	
ASSETS				LIABILITIES AND NET WORTH			
Liquid Assets				**Current Liabilities**			
Cash on hand	$	70.00		Utilities (Phone & Elec.)	$	90.00	
In checking		180.00		Rent			
Savings accounts				Insurance premiums		220.00	
Money market		650.00		Taxes		400.00	
funds and deposits				Medical/dental bills			
Certificates of deposit (<1 yr. to maturity)				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			
(Company: Safeco)				entertainment			
Bonds-U.S. Govt		500.00		Gas and other credit card			
				balances			
Certificates of deposit				Bank line of credit			
(>1 yr. to maturity)				balances			
Mutual funds				Other current liabilities			
Real estate				**Total Current Liabilities**			$ 1,300.00
Retirement funds, IRA				**Long-Term Liabilities**			
Other				Primary residence mortgage	$	52,000.00	
Total Investments			$ 3,500.00				
Real Property				Second home mortgage			
Primary residence	$	68,000.00		Real estate investment			
Second home				mortgage			
Other				Auto loans		3,000.00	
Total Real Property			$ 68,000.00	Appliance/furniture loans		500.00	
Personal Property				Home improvement loans			
Auto(s): 2006 Honda	$	10,000.00		Single-payment loans			
Auto(s):				Education loans			
Recreational vehicles				Margin loans used to			
Household furnishing		1,050.00		purchase securities			
Jewelry and artwork				Other long-term loans			
Other (Clothing)		900.00		**Total Long-Term Liabilities**			$ 55,500.00
Other				**(II) Total Liabilities**			$ 56,800.00
Total Personal Property			$ 11,950.00	**Net Worth [(I) - (II)]**			$ 27,550.00
(I)Total Assets			$ 84,350.00	**Total Liabilities and Net Worth**			$ 84,350.00

3. Jim and Beth's income and expense statement follows. Note that for the purchase of the photographic equipment and the car, only the amounts actually paid during the period are listed as expenses on the income and expenses statement. (We are not told the amount of the car loan payments, so the $2,450 listed does not reflect interest charges.) The outstanding balances will appear as liabilities on the balance sheet. The fair market value of the items purchased will appear as assets on the balance sheet.

Problem 3—Worksheet 2.2

INCOME AND EXPENSE STATEMENT			
Name(s)	Jim and Beth Butler		
For the	Year	Ended	12/31/10
Income			
Wages and salaries	Name: Beth	$	47,000.00
	Name:		
	Name:		
Self-employment income			
Bonuses and commissions			
Investment income	Interest received (savings & bonds)		180.00
	Dividends received		
	Rents received		
	Sale of securities		
	Other		
Pensions and annuities			
Other income	Reimbursement for Beth's travel		1,950.00
	(I) Total Income	$	**49,130.00**
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		600.00
Personal care	Laundry, cosmetics, hair care		
Recreation and entertainment	Vacations		
	Other recreation and entertainment		280.00
Other items	Jim's tuition, books, supplies		3,300.00
	Beta Corp. bonds		4,900.00
	Travel expenses for Beth		1,950.00
	(II) Total Expenses	$	**31,540.00**
	CASH SURPLUS (OR DEFICIT) [(I)-(II)]	$	**17,590.00**

* We are not told the amount spent on car loan payments, so the $2,450 reflects on the principal paid and does not include interest charges, as it should.

4.

Item No.	Item (1)	Amount Budgeted (2)	Amount Spent (3)	Beginning Balance (4)	Monthly Surplus (Deficit) (5)	Cumulative Surplus (Deficit) (6)
1	Rent	$550	$575	$50	$(25)	$25
2	Utilities	150	145	15	5	20
3	Food	510	475	(45)	45	0
4	Auto	75	95	(25)	(20)	(45)
5	Recr. & enter.	100	110	(50)	(10)	(60)

5. This question requires a personal response that will differ for each student. Therefore, a specific example has not been provided. However, the 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 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: Problem 6 deals 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.

6. a. If Joyce can earn 6% on her money, $54,188 will be worth about $72,500 in 5 years:

FV = PV x FV factor $_{6\%,5yrs.}$
= $54,188 x 1.338
= <u>$72,503.54</u>

54188	+/-	PV
6		I
5		N
FV		$\boxed{\$72,515.77}$

No, she will fall short by about $27,500.

b. Assuming that Joyce 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 about $4,878.48 per year. This calculation is as follows:

FV	=	PMT x FVA factor $_{6\%,5yrs.}$	27500	+/-	FV
PMT	=	FV ÷ FVA factor $_{6\%,5yrs.}$	6		I
	=	$27,500 ÷ 5.637	5		N
	=	$4,878.48	PMT		$\boxed{\$4,878.40}$

c. If Joyce saves only $4,000 per year she would have an additional $22,548 for a total of $95,048 ($72,500 + 22,548) and will fall $4,952 short of her $100,000 goal.

FV	=	PMT x FVA factor $_{6\%,5yrs.}$	4000	+/-	PMT
	=	$4,000 x 5.637	6		I
	=	$22,548	5		N
			FV		$\boxed{\$22,548.37}$

7. [IMPORTANT Note to Instructors: The Appendix does not have the factors for 6%, so students would have to research this on the Internet, if they calculate the amount (shown below) without a financial calculator. For example, here is one possible link http://accountinginfo.com/study/pv/table-pv-s-01.pdf.]

Bill needs $73,327.10 today to fund college.

PV = FV x PV factor $_{6\%,4yrs.}$
= $23,000 x .792
= $18,216

PV = FV x PV factor $_{6\%,5yrs.}$
= $24,300 x .747
= $18,152.10

PV = FV x PV factor $_{6\%,6yrs.}$
= $26,000 x .705
= $18,330

PV = FV x PV factor $_{6\%,7yrs.}$
= $28,000 x .665
= $18,620

Add $18,216 + $18,152.10 + $18,330 + $18,620 = $73,318.10

This problem in a TI BAII+ Calculator:
CFO = 0
C01 = 0, F01 = 3

C02 = 23000, F02 = 1
C03 = 24300, F03 = 1
C04 = 26000, F04 = 1
C05 = 28000, F05 = 1
I = 6
CPT NPV = 73,327.10

8. 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 $_{6\%,20yrs.}$	2000	+/-	PMT
	=	$2,000 x 36.780	6		I
	=	$73,560	20		N
			FV		$\boxed{\$73,571.18}$

Solutions to Critical Thinking Cases

The following are solutions to "Critical Thinking Cases" found on the student website, CourseMate for PFIN 2, at www.cengagebrain.com. You can find these questions on the instructor site as well.

2.1 The Gordons' Version Of Financial Planning

1. The Gordons' personal financial statements are on the following page.

2. a. Solvency $= \dfrac{\text{Total Net Worth}}{\text{Total Assets}} = \dfrac{\$67{,}745}{\$223{,}070} = .30$

The Gordons could withstand about a 30% decline in the market value of their assets before they would be insolvent. The solvency ratio also indicates percent ownership: the Gordons own free and clear about 30% of their total assets. While this ratio is acceptable, they should seek to improve it.

b. Liquidity $= \dfrac{\text{Liquid Assets}}{\text{Total Current Liabilities}} = \dfrac{\$3{,}570}{\$2{,}675} = 1.33$

The Gordons can cover their current liabilities with their liquid assets and have a little to spare. However, they still have to make mortgage and auto loan payments each month and probably would not want to use up their money market funds to do so.

c. Savings $= \dfrac{\text{Cash Surplus}}{\text{Income after Taxes}} = \dfrac{\$19{,}048}{\$100{,}000 – \$30{,}752} = 27.51\%$

At about 27.5%, the Gordons' current saving rate is above that of the average American family. However, if they were to live off only Burt’s income, their savings rate would probably fall considerably.

d. Debt Service $= \dfrac{\text{Total Debt Payments}}{\text{Gross Income}}$

$$= \frac{\text{Mortgage + car loan + credit card payments}}{\text{Gross Income}}$$

$$= \frac{\$11,028 + \$2,150 + \$2,210}{\$100,000} = \frac{\$15,388}{\$100,000} = 15.39\%$$

The Gordons are okay for now. However, with only his salary, the debt service ratio becomes higher:

$$\frac{\$15,388}{\$64,000} = 24.0\%$$

With more unexpected debt straining the one-income family, it could quickly spiral out of control. That said, the rule of thumb is to try to keep your debt service ratio somewhere under 35% or so, because that’s generally viewed as a manageable level; both ratios are below this guideline.

Case 2.1, Problem 1

BALANCE SHEET							
Name(s)	Burt and Emily Gordon			Date	December 31, 2010		
ASSETS				LIABILITIES AND NET WORTH			
Liquid Assets				**Current Liabilities**			
Cash on hand	$	85.00		Utilities	$		
In checking		485.00		Rent			
Savings accounts				Insurance premiums			
Money market		3,000.00		Taxes			
funds and deposits				Medical/dental bills			
deposit (<1 yr. to maturity)				Repair bills			
Total Liquid Assets			**$ 3,570.00**	Bank credit card balances		675.00	
Investments				Dept. store credit card balances			
Stocks	$	15,000.00		Travel and entertainment		2,000.00	
Bonds				Gas and other credit card			
Certificates of deposit				Bank line of credit balances			
Mutual funds				Other current liabilities			
Real estate				**Total Current Liabilities**			**$ 2,675.00**
Retirement funds, IRA				**Long-Term Liabilities**			
Other				Primary residence mortgage	$	148,000.00	
Total Investments			**$ 15,000.00**				
Real Property				Second home mortgage			
Primary residence	$	185,000.00		Real estate investment mortgage			
Second home							
Other				Auto loans		4,650.00	
Total Real Property			**$185,000.00**	Appliance/furniture loans			
Personal Property				Home improvement loans			
Auto(s): 2007 Nissan	$	15,000.00		Single-payment loans			
Auto(s):				Education loans			
Recreational vehicles				Margin loans used to purchase securities			
Household furnishing		4,500.00					
Jewelry and artwork				Other long-term loans			
Other				**Total Long-Term Liabilities**			**$152,650.00**
Other				**(II) Total Liabilities**			**$155,325.00**
Total Personal Property			**$ 19,500.00**	**Net Worth [(I) - (II)]**			**$ 67,745.00**
(I)Total Assets			**$223,070.00**	**Total Liabilities and Net Worth**			**$223,070.00**

INCOME AND EXPENSE STATEMENT			
Name(s)	Burt and Emily Gordon		
For the	Year	Ended	December 31, 2010
Income			
Wages and salaries	Name: Burt	$	64,000.00
	Name: Emily		36,000.00
	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	**$**	**100,000.00**
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)		600.00
	Doctor, dentist, hospital, medicines		
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		30,752.00
	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	Credit Card Loan Payments		2,210.00
	Purchase of common stock		7,500.00
	Addition to money market account		500.00
	(II) Total Expenses	**$**	**80,952.00**
	CASH SURPLUS (OR DEFICIT) [(I)-(II)]	**$**	**19,048.00**

[Note: $1,400 of the $11,028 in house payments was for property taxes—only $9,628 was for the mortgage. The homeowner's insurance was listed separately.]

3. If the Gordons continue to manage their finances as described in the case, there is no question that, in the long-run, they are headed for financial disaster. Because the Gordons have become accustomed to living with a double income, it will be extremely difficult to change their overall way of life or standard of living. The Gordons must realize that the bottom line of the income statement is the most important, and given their present level of expenses, their contribution to savings or investment will change from an annual surplus—and it's already very small—to an annual deficit. As a result, their net worth will decline, and the long-run consequence of these events will be financially quite detrimental to the Gordons.

Burt must understand that the family will incur additional living expenses when the child is born, that inflation will continue, and that the cost of home ownership and everyday living will more than offset his expected 10%increase in pay. At the present time, Burt’s take-home income of $44,200 barely covers the necessities, even when eliminating trips, recreation, entertainment, and additions to investments and savings. A 10% (take-home) pay increase of $4,420 will increase his take-home pay to $48,620, which will help the Gordon family paying for these necessities, but if one cranks in estimates for inflation and the added expenses for a child as well as other unforeseen costs (perhaps medical issues related to the delivery), the Gordons could definitely be in financial difficulties.

The long-run consequences of Burt's strategy could prove very harmful. Although the Gordons' net worth is now positive, any future annual expenses exceeding income (take-home pay) will erode their savings, investments, and net worth. Currently, they really do not have much excess to cover any emergency expenses. If the Gordons wish to maintain or increase their net worth and to achieve their financial goals, they must take immediate action to find ways to either increase revenue or decrease expenses.

The logical solution at this time is for Burt and Emily to prepare a budget and follow it to live within the constraints of their expected income and expenses. They should immediately look at all expenses, past, present, and future, to develop financial plans so they can live within their means. They should review their balance sheet and income statement and then prepare projected monthly and annual budgets. The couple should record planned income and expenses month by month, monitoring monthly surpluses and deficits so they can quickly correct them. It won't be too long before they realize that maintaining their present standard of living will seriously erode their overall net worth. Burt and Emily should develop objectives or goals for both the long- and short-run. By correlating budget control with expected future goals, a realistic plan of action can be developed that allows them to achieve their financial goals and continue to increase their net worth.

2.2 Jim Pavlov Learns To Budget

1. a. In order to get the big picture of Jim's expected income and expenses, it may be more useful to simply use a modified Worksheet 2.2, the Income and Expense Statement, to project his expected position for the coming year. [Note to Instructors: you may want to have students submit two separate Worksheets 2.2 using the template, rather than having them customize a combined answer as we have included in this manual.] When doing this problem together in class, work through the given setup using a blank Income and Expense Statement on the overhead projector. Then have the class decide which items need to be slashed. (See the example which follows.) After these decisions have been made, divide the expenses into months and fill out Worksheet 2.3 as indicated in part 2 which follows.

   b. Jim's total expenses of $35,979 are less than his expected total income; he has a surplus.

2. The mentioned adjustments were incorporated into making Jim's annual cash budget summary shown on Worksheet 2.3 which follows. Please note that some of the monthly budgeted items vary by small amounts in order to make the totals correct.

3. (Students' answers will vary depending on the adjustments chosen.)

Case 2.2, Problem 1a

Income and Expense Statement			
Name: Jim Pavlov			
For the Year	Ending December 31, 2010		
Income		**Projected**	**Adjusted**
Salary	Jim's take-home pay of $3,200/mo.	$ 38,400	$ 38,400
Other income			
	(I) Total Income	$ 38,400	$ 38,400
Expenses			
Housing	Rent	$ 12,000	$12,000
	Repairs		
Utilities	Gas, electric, water	1,080	1,134
	Phone	600	660
	Cable TV and other	440	500
Food	Groceries	2,500	2,625
	Dining out	2,600	2,600
Transportation	Auto loan payments	3,840	3,840
	Auto related expenses	1,560	1,638
	Other transportation expenses		
Medical	Health-related insurance		
	Doctor, dentist, hospital, medicines	190	190
Clothing	Clothes, shoes, accessories	3,200	2,250
Insurance	Homeowner's		
	Life		
	Auto	1,855	1,948
Taxes	Income and social security		
	Property (if not included in mortgage)		
Appliances, furniture & other major purchases	Loan payments	540	540
	Purchases and repairs	1,200	660
Personal care	Laundry, cosmetics, hair care	424	424
Recreation & entertainment	Vacations		2,100
	Other recreation and entertainment	2,900	2,900
Other items	Misc.	600	600
	Credit card pmts: 6 mo.@$75/mo.	450	450
	Other expenses		
	(II) Total Expenses	$ 35,979	$ 37,059
	CASH SURPLUS (OR DEFICIT) [(I) – (II)]	$ 2,421	$ 1,341

Case 2.2, Problem 2—Worksheet 2.3

Name(s)	Jim Pavlov		
For the	Year	Ended	December 31, 2011

INCOME	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total for the year
Take-home pay	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 38,400.00
Bonuses and commissions													$ -
Pensions and annuities													$ -
Investment income													$ -
Other income													$ -
(I) Total Income	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 3,200.00	$ 38,400.00
EXPENSES													
Housing (rent/mtge, repairs)	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 12,000.00
Utilities (phone, elec., gas, water)	191.17	191.17	191.17	191.17	191.17	191.17	191.17	191.17	191.17	191.17	191.17	191.13	$ 2,294.00
Food (home and away)	435.42	435.42	435.42	435.42	435.42	435.42	435.42	435.42	435.42	435.42	435.42	435.38	$ 5,225.00
Transportation (auto/public)	448.91	540.00	448.91	448.91	448.91	448.91	448.91	448.91	448.91	448.91	448.91	448.90	$ 5,478.00
Medical/dental, incl. insurance	10.00	10.00	45.00	10.00	10.00	10.00	10.00	10.00	45.00	10.00	10.00	10.00	$ 190.00
Clothing	187.50	187.50	187.50	187.50	187.50	187.50	187.50	187.50	187.50	187.50	187.50	187.50	$ 2,250.00
Insurance (life, auto, home)	-	-	-	-	-	974.00	-	-	-	-	-	974.00	$ 1,948.00
Taxes (property)													$ -
Appliances, furniture, and other (purchases/loans)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	$ 1,200.00
Personal care	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.37	$ 424.00
Recreation and entertainment	241.67	241.67	241.67	241.67	241.67	241.67	2,341.67	241.67	241.67	241.67	241.67	241.63	$ 5,000.00
Savings and investments													$ -
Other expenses	125.00	125.00	125.00	125.00	125.00	125.00	50.00	50.00	50.00	50.00	50.00	50.00	$ 1,050.00
Fun money													$ -
(II) Total Expenses	$ 2,775.00	$ 2,866.09	$ 2,810.00	$ 2,775.00	$ 2,775.00	$ 3,749.00	$ 4,800.00	$ 2,700.00	$ 2,735.00	$ 2,700.00	$ 2,700.00	$ 3,673.91	$ 37,059.00
CASH SURPLUS (OR DEFICIT) [(I)-(II)]	$ 425.00	$ 333.91	$ 390.00	$ 425.00	$ 425.00	$ (549.00)	$ (1,600.00)	$ 500.00	$ 465.00	$ 500.00	$ 500.00	$ (473.91)	$ 1,341.00
CUMULATIVE CASH SURPLUS (OR DEFICIT)	$ 425.00	$ 758.91	$ 1,148.91	$ 1,573.91	$ 1,998.91	$ 1,449.91	$ (150.09)	$ 349.91	$ 814.91	$ 1,314.91	$ 1,814.91	$ 1,341.00	$ 1,341.00