

Personal Finances

PF.1	Creating a Personal Budget	PF-1
PF.2	Charts	PF-2
	Practice 1	PF-3
PF.3	Achieving Long-Term Objectives	PF-4
	Practice 2	PF-5
PF.4	Accounting for Inflation	PF-5
	Practice 3	PF-7
PF.5	Calculating Taxes	PF-8
	Practice 4	PF-9
PF.6	Establishing Credit	PF-10
PF.7	Calculating the Cost of Credit —	
	Installment Loans	PF-12
	Practice 5	PF-14
PF.8	Purchasing an Automobile	PF-15
	Practice 6	PF-16
PF.9	Long-Term Borrowing	PF-16
	Practice 7	PF-18
PF.10	Your Right to Review Credit Information ...	PF-19
PF.11	Saving Money and Compound Interest	PF-20
	Practice 8	PF-21
PF.12	Retirement Plans	PF-21
	Practice 9	PF-23
	Chapter Summary	PF-24
	Vocabulary	PF-26
	Review Questions	PF-27
	Exercises	PF-28
	Index	PF-31

Expectations

After completing this chapter you will be able to:

1. Create a personal budget.
2. Identify short-term and long-term financial objectives.
3. Distinguish between fixed and variable expenses.
4. Understand how inflation can affect savings.
5. Describe different types of taxes.
6. Distinguish between gross and net pay.
7. Describe different ways to establish credit.
8. List good and poor reasons for borrowing money.
9. Use spreadsheet software to calculate the cost of credit.
10. Understand the difference between purchasing and leasing a car.
11. Use spreadsheet software to determine mortgage payments.
12. Describe laws that protect your privacy and the accuracy of data stored about you.
13. Use spreadsheet software to calculate compound interest.
14. Describe the importance of saving for retirement.

This chapter discusses how to organize and plan personal finances – a process that involves accumulating relevant data, and making careful, common sense decisions. Also discussed are practical financial problems such as, using credit cards, purchasing an automobile or house, making investments, and planning for retirement.

PF.1 Creating a Personal Budget

Many people simply spend the money they earn until it runs out. The problem with this approach is that it does not allow financial goals to be achieved, such as producing the down payment on a home or accumulating savings. The primary purpose of a budget is to limit spending so that it does not exceed income and allows for saving. The purpose of saving is to achieve long-term goals.

The budget below is for Jan Diego who has just graduated from college and rented an apartment:

	A	B	C	D
1	Jan Diego's Budget for 2004			
2				
3		Budgeted	Actual	
4	September Income (after taxes)	\$1,700.00	\$1,746.52	
5				
6	September Expenses:			
7	Rent	\$450.00	\$450.00	
8	Food	\$350.00	\$320.00	
9	Auto payment	\$185.00	\$185.00	
10	Auto insurance	\$65.00	\$65.00	
11	Gasoline	\$40.00	\$55.00	
12	Entertainment	\$150.00	\$170.00	
13	Clothing	\$75.00	\$52.00	
14	Utilities	\$74.00	\$64.00	
15	Telephone	\$48.00	\$48.00	
16	Credit card payment	\$45.00	\$45.00	
17	Health insurance	\$23.00	\$23.00	
18	Charitable contributions	\$45.00	\$25.00	
19				
20	Total monthly expenses	\$1,550.00	\$1,502.00	
21				
22	Monthly savings	\$150.00	\$244.52	
23				

Monthly budget illustrating a budgeted amount and the actual amount spent during the month

income, expense

fixed expenses
variable expenses

Income is the money earned during the month. An *expense* is money spent during the month. Expenses can be divided into fixed and variable expenses. *Fixed expenses*, such as rent, do not change from month to month. *Variable expenses*, such as entertainment, can vary in amount from month to month. The budget above includes the expense utilities. Utilities include electricity, gas and water bills. When renting, sometimes one or all of these will be included in the monthly rent. Another expense in the budget, health insurance is for additional coverage not provided by Jan's employer.

What If? question

By placing the budget in a worksheet Jan is able to answer "What If?" questions. A *What If?* question asks how changing data will impact results. For example, changing the food expense to \$200.00 results in the monthly savings formula recalculating to display the value \$300.00. Note that in the worksheet Monthly Savings is calculated by subtracting the Total monthly expenses from Total monthly income.

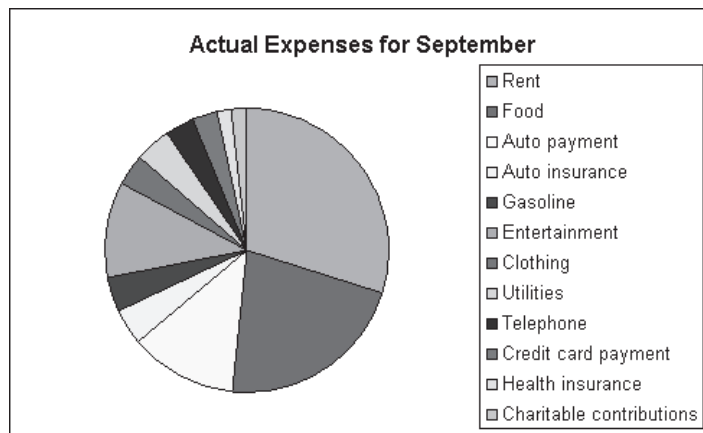
Jan's savings are kept in a savings account which earns interest. Because she does not intend to spend this interest, it is not included as income in her budget.

PF.2 Charts

Excel worksheet data can be used to create a chart. A *chart* can simplify the understanding of numerical data in a worksheet by illustrating a relationship between the data.

column chart

The three most common types of charts are bar, line, and pie. Bar charts are useful for comparing the differences between values, for example, the monthly amount spent on entertainment. Excel can create bar charts with either vertical bars or horizontal bars. In Excel, a horizontal bar chart is called a bar chart and a vertical bar chart is called a *column chart*. Line charts are useful for displaying the differences of data over time, such as the monthly amount of Jan's savings. Pie charts are best for charting data that is a percentage of a whole. Each slice in a pie chart represents one fractional part of the whole and the size of the slice varies with its percentage of the total. A pie chart might be used to illustrate how monthly expenses are divided:



The pie chart illustrates each expense as a percentage of the entire budget

Practice 1

In this practice you will open a workbook and examine a personal budget. You will also answer some “What If” questions.

① *OPEN BUDGET 2004*

Open BUDGET 2004, which is a data file for this chapter. Note that the worksheet contains Jan Diego’s monthly budget for 2004.

② *ANSWER WHAT IF? QUESTIONS*

Jan would like to increase her savings to \$250 a month by cutting her expenses. Try to achieve the desired savings by cutting each of her expenses by an acceptable amount. Be as realistic as possible when making your cuts. Remember, some expenses are fixed, such as rent and auto payment and cannot be cut.

③ *CREATE A PIE CHART*

Create a pie chart from the modified worksheet which displays the percentage each monthly expense contributes to the Total monthly expense. Your chart should be similar to the one in Section PF.2.

④ *PRINT THE WORKSHEET AND CHART*

- a. Create a header with the date center aligned and a footer with your name right aligned.
- b. Make sure the chart is not selected and then click the Print button on the toolbar. The worksheet is printed with the chart.

⑤ *SAVE AND CLOSE THE MODIFIED BUDGET 2004*

⑥ *CREATE A NEW WORKBOOK*

⑦ *ADD LABELS AND DATA*

- a. Add labels and data to create a worksheet similar to the one produced by Jan Diego that contains your personal budget.
- b. Save the workbook, naming it: My Budget

⑧ *CREATE A PIE CHART*

Create a pie chart from the modified worksheet which displays the percentage each monthly expense contributes to the Total monthly expense. Your chart should be similar to the one in Section PF.2.

⑨ *PRINT THE WORKSHEET AND CHART*

- a. Create a header with the date center aligned and a footer with your name right aligned.
- b. Make sure the chart is not selected and then click the Print button on the toolbar. The worksheet is printed with the chart.

⑩ *SAVE AND CLOSE THE MODIFIED MY BUDGET*

PF.3 Achieving Long-Term Objectives

A major reason for creating and living within a budget is to allow money to be saved so that future objectives can be achieved. One of the best ways to prepare for the future is to write a formal plan which lists objectives and the financial details needed to achieve them.

Needs vs Wants

Needs are goods or services that are required, such as food, clothing, shelter, or health care. Wants are goods or services that are not necessary but are desired, such as jewelry or entertainment.

To be effective a financial plan must be realistic. It should also be flexible, allowing for adjustment as circumstances change. A number of factors must be considered in developing a plan such as inflation, changes in income, and availability of credit. Choices must be made. Few people have sufficient income to achieve all their wants; therefore priorities must be set and decisions made.

The first step in producing a financial plan is to identify both short-term and long-term objectives. In 2004 Jan Diego decided to produce a three year (2005 - 2007) personal financial plan and set the following objectives:

2005 - move into a new apartment with a rent of \$500 a month and purchase \$2,500 in furnishings and appliances on an installment plan.

2006 - purchase a new automobile, financing \$8,500 of the cost.

2007- continue with savings plan.

The second step is to predict income. For most people the largest share of income comes from wages, but other sources such as gifts, inheritances, bonuses, interest, or dividends should be included. Predicting income over a period of time can be difficult, particularly for those who work on commission or for seasonal businesses.

The third step is estimating expenses, which can be identified as fixed and variable. Fixed expenses are those which have to be paid on specified dates and in specific amounts. Some fixed expenses are paid monthly, such as rent or mortgage payments and installment loan payments, while some are paid annually or semi-annually, such as insurance or college tuition. Variable expenses, such as food or credit card bills, fluctuate both in amount and in when they need to be paid. Usually in attempting to balance a budget it is easier to reduce variable expenses rather than fixed expenses.

Practice 2

In this practice you will distinguish between fixed and variable expenses.

① *DISTINGUISH BETWEEN FIXED AND VARIABLE EXPENSES*

Determine which of the following expenses is a fixed or variable expense or which could be either.

- | | |
|-----------------------------|-----------------------------|
| a. repairs and maintenance | h. laundry and dry cleaning |
| b. telephone | i. movie tickets |
| c. cable TV | j. newspapers and magazines |
| d. auto maintenance | k. barber/ beauty parlor |
| e. bus fare | l. medical expenses |
| f. fire and theft insurance | m. credit card payment |
| g. restaurant meals | n. charity contribution |

PF.4 Accounting for Inflation

inflation

A major problem in producing financial projections is to include the influence of inflation. *Inflation* is when the prices we pay for products and services increase. This usually occurs when people have more money to spend and are therefore willing, or at least capable, of paying higher prices for goods.

Inflation in the United States and Canada has been modest for the past few years, running between 1 and 4% per year, but in the 1980's it ran over 10%. Even at a rate as low as 2% the impact on prices over a number of years is considerable and needs to be taken into account when making financial projections.

Jan Diego tested her financial plan with different rates of inflation. She took each of the expense categories which she believed would be influenced by inflation and then multiplied the previous year's figure by the rate of inflation. For example, when the 2004 food expense of \$4,200 is multiplied by 2% it produces an increase of \$84, which when added to the \$4,200, yields a food expense of \$4,284 for 2005. Inflation is built into all the expense categories except for her car and furniture loans, and charitable contributions. For the car and furniture, and most installment loans, the monthly payment is set when the loan is received and remains constant for the life of the loan (unaffected by inflation). For charitable contributions, Jan decided to keep her donations constant at \$95 each month.

The worksheets on the next page, displays the effects of two different rates of inflation, 2% and 5%:

	A	B	C	D	E	F
1	Jan Diego Financial Projections Including Inflation					
2						
3	Inflation rate:	2%				
4						
5	Year	2004	2005	2006	2007	
6						
7	Income after taxes	\$20,400.00	\$22,500.00	\$25,000.00	\$28,000.00	
8						
9	Expenses:					
10						
11	Rent	\$5,400.00	\$6,000.00	\$6,120.00	\$6,242.40	
12	Food	\$4,200.00	\$4,284.00	\$4,369.68	\$4,457.07	
13	Auto payment	\$2,220.00	\$2,200.00	\$2,844.00	\$2,844.00	
14	Auto insurance	\$780.00	\$795.60	\$811.51	\$827.74	
15	Gasoline	\$480.00	\$489.60	\$499.39	\$509.38	
16	Entertainment	\$1,800.00	\$1,836.00	\$1,872.72	\$1,910.17	
17	Clothing	\$900.00	\$918.00	\$936.36	\$955.09	
18	Utilities	\$888.00	\$905.76	\$923.88	\$942.35	
19	Telephone	\$576.00	\$587.52	\$599.27	\$611.26	
20	Credit card payment	\$540.00	\$550.80	\$561.82	\$573.05	
21	Health insurance	\$276.00	\$281.52	\$287.15	\$292.89	
22	Charitable contributions	\$1,140.00	\$1,140.00	\$1,140.00	\$1,140.00	
23	Furniture loan	\$ -	\$1,044.00	\$1,044.00	\$1,044.00	
24						
25	Total yearly expenses	\$19,200.00	\$21,032.80	\$22,009.78	\$22,349.41	
26						
27	Yearly savings	\$1,200.00	\$1,467.20	\$2,990.22	\$5,650.59	
28						

In comparing the worksheet above for 2% inflation and the worksheet below for 5%, look carefully to see how the numbers change. It is over a period of several years that the rate of inflation has its most profound impact. For example, at 2% inflation food increases over the four years from \$4,200 to \$4,457.07, but at 5% inflation it increases from \$4,200 to \$4,862.03. This is a significant difference of almost \$405. Comparing total expenses for the same four years we see that at 2% inflation the 2007 total is \$22,349.41 and at 5%, \$23,728.61, a difference of \$1,379.20, which reduces the amount of savings.

	A	B	C	D	E	F
1	Jan Diego Financial Projections Including Inflation					
2						
3	Inflation rate:	5%				
4						
5	Year	2004	2005	2006	2007	
6						
7	Income after taxes	\$20,400.00	\$22,500.00	\$25,000.00	\$28,000.00	
8						
9	Expenses:					
10						
11	Rent	\$5,400.00	\$6,000.00	\$6,300.00	\$6,615.00	
12	Food	\$4,200.00	\$4,410.00	\$4,630.50	\$4,862.03	
13	Auto payment	\$2,220.00	\$2,200.00	\$2,844.00	\$2,844.00	
14	Auto insurance	\$780.00	\$819.00	\$859.95	\$902.95	
15	Gasoline	\$480.00	\$504.00	\$529.20	\$555.66	
16	Entertainment	\$1,800.00	\$1,890.00	\$1,984.50	\$2,083.73	
17	Clothing	\$900.00	\$945.00	\$992.25	\$1,041.86	
18	Utilities	\$888.00	\$932.40	\$979.02	\$1,027.97	
19	Telephone	\$576.00	\$604.80	\$635.04	\$666.79	
20	Credit card payment	\$540.00	\$567.00	\$595.35	\$625.12	
21	Health insurance	\$276.00	\$289.80	\$304.29	\$319.50	
22	Charitable contributions	\$1,140.00	\$1,140.00	\$1,140.00	\$1,140.00	
23	Furniture loan	\$ -	\$1,044.00	\$1,044.00	\$1,044.00	
24						
25	Total yearly expenses	\$19,200.00	\$21,346.00	\$22,838.10	\$23,728.61	
26						
27	Yearly savings	\$1,200.00	\$1,154.00	\$2,161.90	\$4,271.40	
28						

There are several important points to note. In keeping with her long-term objectives, Jan wants to rent a new apartment in 2005, with a \$500 per month rent. She will also purchase \$2,500 worth of furnishings and appliances for the apartment which will be paid for by taking out an installment loan. The loan payment will be approximately \$87 a month for the next three years. In 2006 Jan wants to purchase a new car, financing \$8,500 for four years. This means that she must budget a monthly payment of approximately \$237 for the next four years. To project monthly payments such as these, a worksheet can be used as described in Section PF.7.

Jan's salary projections are based on the fact that her employer has led her to believe that she will receive substantial raises (greater than the rate of inflation) for the next few years, plus small annual bonuses.

Note how as the rate of inflation increases the amount of money Jan must spend on expenses also increases. A 3% increase in the rate of inflation (from 2% to 5%) means that she must spend approximately \$1,500 more to meet her expenses than she would if the rate was 2%. This \$1,500 comes directly out of the amount she is able to save.

In the worksheets on the previous page, the Inflation rate is stored in cell B3. If the 2004 Food expense is stored in cell B12, the 2005 expense can be calculated by storing the formula $=B12 + B12 * \$B\3 in cell C12. Likewise the 2006 Food expense is calculated by storing the formula $=C12 + C12 * \$B\3 in cell D12. In a similar manner the other expense categories store the appropriate equations to allow for the inflation calculation.

Practice 3

In this practice you add formulas to an existing worksheet and create a column chart. You will also create a new workbook, add data, and create a chart from the data.

① OPEN INFLATION

Open INFLATION, which is a data file for this chapter. Note that the worksheet contains Jan Diego's three year financial projections. To organize her data and produce the desired financial projections, Jan Diego will first project what she believes her after-tax income will be for each year. Her employer, Page and Page Publishers, has led her to believe that she will receive substantial raises for the next few years plus a small annual bonus. Expenses will be relatively easy to project since Jan has current (2004) figures to use as shown in Section PF.1.

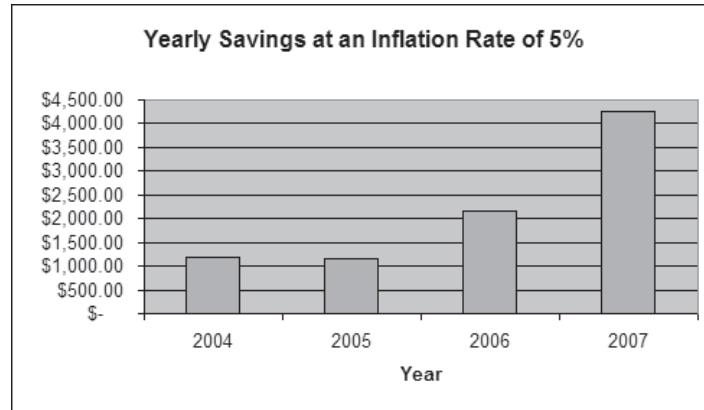
② DETERMINE TOTAL SAVINGS

Determine yearly savings for the years 2004 to 2007 for inflation rates of 3%, 6%, and 9%. Using paper and pencil record the yearly saving for each of the inflation rates.

③ CREATE A COLUMN CHART

Create a column chart which displays yearly savings for an inflation rate of 2.5%.

Check—Your chart should look similar to:



④ SAVE THE MODIFIED INFLATION

⑥ CREATE A NEW WORKBOOK

- Using data from the My Budget workbook created in Practice 1, produce a three year projection for your finances. Include an inflation factor and test the worksheet with inflation rates of 2%, 6%, and 10%.
- Create a column chart which displays yearly savings for an inflation rate of 4%.
- Create a header with the date center aligned and a footer with your name right aligned.
- Save the workbook naming it: Three Year Projection
- Print a copy of the worksheet with the chart and close the workbook.

PF.5 Calculating Taxes

To finance its many activities each level of government, federal, state, and local, levies taxes. These taxes must be considered in producing financial plans. Note that some states do not have a state income tax but instead generate income from sales taxes or other taxes.

Most people pay a variety of taxes; income, social security, property, and sales taxes being among the most common. In the INFLATION workbook in Section PF.4, Jan Diego's income was projected "after taxes," meaning after all taxes had been deducted from her salary.

Jan pays three separate taxes on her income — federal, social security (or "FICA"), and state. Each of the taxes is calculated using the following schedules. Note that these are not the actual rates which change as Congress votes new tax laws:

Federal Income Tax

\$0 to \$19,500	15%
amount over \$19,500	28%

Social Security (FICA)

All income	7.5%
------------	------

State Income Tax

All income 2.5%

When calculating federal taxes the amount of salary under \$19,500 is taxed at 15% and only that portion of the salary exceeding \$19,500 at 28%. For example, a person earning \$25,000 is taxed \$4,465: $(\$19,500 * 0.15) + (\$5,500 * 0.28)$.

Below is a worksheet that calculates Jan Diego's taxes using her projected salaries:

	A	B	C	D	E
1	Jan Diego's Tax Projections				
2					
3	Year	2004	2005	2006	2007
4					
5	Gross pay	\$28,800.00	\$32,200.00	\$36,235.00	\$41,075.00
6					
7	Taxes:				
8	Federal	\$5,529.00	\$6,481.00	\$7,610.80	\$8,966.00
9	Social Sec	\$2,160.00	\$2,415.00	\$2,717.63	\$3,080.63
10	State	\$720.00	\$805.00	\$905.88	\$1,026.88
11					
12	Net pay	\$20,391.00	\$22,499.00	\$25,000.70	\$28,001.50
13					

gross pay Note that the term *gross pay* is used to represent income before any taxes or other deductions are subtracted. Income after taxes have been subtracted is called *net pay*.

net pay

Practice 4

① OPEN TAXES

Open TAXES, which is a data file for this chapter.

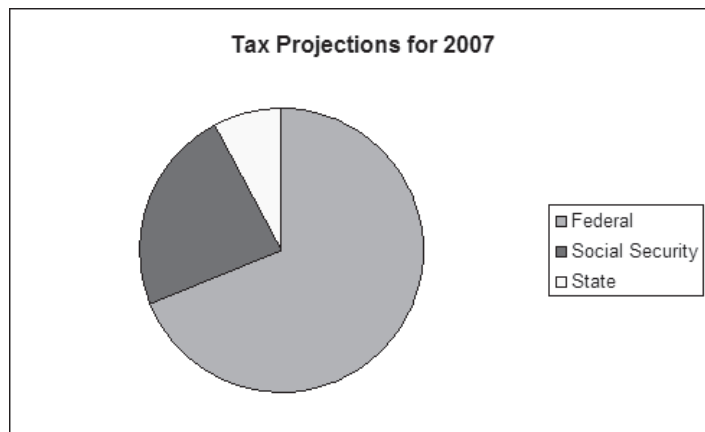
② MODIFY THE DATA

a. Modify the worksheet to calculate Jan's net pay if she earns the following salaries:

2004	\$25,000
2005	\$35,000
2006	\$45,000
2007	\$55,000

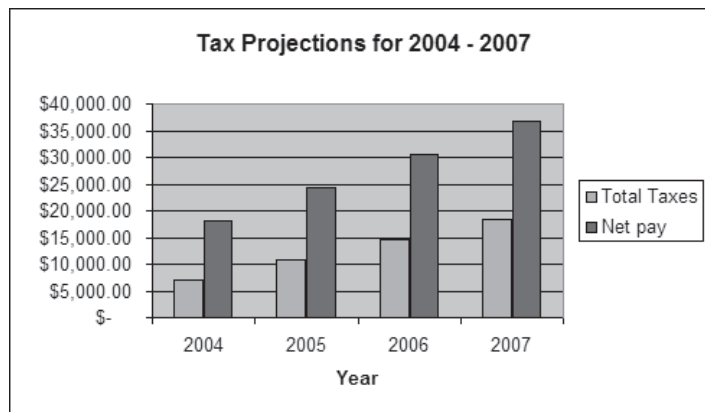
b. Create a pie chart for 2007 showing the percentage paid to each of the three taxes.

Check—Your chart should look similar to:



- c. In row 11 of the worksheet, add an appropriate label and formulas to calculate the total taxes.
- d. Create a column chart that shows the net pay and total taxes for each of the four years.

Check—Your chart should look similar to:



- e. Save and close the modified worksheet.

PF.6 Establishing Credit

One of the most important financial objectives is the establishment and maintenance of good credit, which means the ability to borrow money. Almost everyone will need to borrow money at some point to buy an automobile or purchase a home. Knowing how to establish and use credit wisely is an important skill.

When a person applies for credit for the first time it is often difficult to obtain because most creditors want a credit history, a record of a person's borrowing and repaying money. Creditors also look for a stable record in income, employment and housing. Often when first establishing credit the creditor will want the borrower to have a "cosigner" who possesses good credit and guarantees to repay the loan if the original borrower is unable to. A cosigner becomes unnecessary after a good credit history has been established.

Probably the easiest way to establish credit is by obtaining a credit card. A credit card is really a type of loan. When you purchase goods or services with a credit card, you sign a contract agreeing to repay the amount charged. When you are sent the bill you have the option of paying all or only part. If you pay only part, you are charged interest on the unpaid balance.

Many credit cards have a limit which allows you to charge only up to an amount previously agreed to, for example \$500. If you do not pay the credit card bill in full when received, but “finance” part of the amount due, it will probably be expensive. Credit card interest rates can run as high as 18% to 22% per year on the unpaid balance. This is called the *APR* or Annual Percentage Rate.

ARP

Another very good way to establish credit is to open checking and savings accounts at your local bank. Once you have had the accounts for a period of time and proven that you use them responsibly, the bank becomes an excellent reference when you apply for credit. Also, most banks are more willing to loan money to their own customers than to those who do not have accounts with them.

Probably the best way to produce a good credit record is to pay loan payments on time. Missing a payment has a negative effect on your credit record. Paying off a loan promptly makes it considerably easier to borrow money in the future. Financial advisors often tell young or first time borrowers to take out a small loan and pay it back promptly. Doing so creates a positive credit history, which will enable the borrower to receive larger loans (such as a house or car loan) in the future.

Credit should be used with caution. Many people get themselves into trouble by borrowing money that they are unable to pay back. Besides ruining their credit rating they can also find themselves in legal difficulties. Remember that when you use credit you are borrowing money, and should have a plan for paying it back.

Credit should be used to achieve major long-term goals, not to meet whims. Good reasons for borrowing money are:

- To purchase a house, car, or major appliance
- To finance education
- To take care of an emergency, such as an illness

Poor reasons for creating debt are:

- Buying on impulse
- Trying to impress others with possessions—sometimes called “keeping up with the Jones’s”
- To cheer yourself up with a shopping spree—this usually ends up causing depression when you realize that you must pay for items you do not need or cannot afford

Credit Card Debt

According to the National Foundation for Credit Counseling, credit card debt averages \$8,562 per household. The average interest rate paid on the debt is 14.71%.

The VISA International credit survey reports that almost half (48%) of credit card owners pay only their minimum monthly payment.

Personal Debt

According to the Consumer Credit Counseling Service, personal debt should never exceed 15% of a person’s take home pay.

Four rules should be followed when using credit:

1. Keep careful records of all credit used. If using a credit card keep the credit slips which show how much has been charged.
2. Limit the number of credit cards you use. Having too many cards makes it difficult to maintain records.
3. Do not use credit on the spur of the moment. Plan ahead for all credit purchases.
4. Realize that money charged is money spent. Budget accordingly to pay off all money owed.

PF.7 Calculating the Cost of Credit— Installment Loans

At some point most people will borrow money to make a large purchase. Usually the money is borrowed using an installment loan which is a loan that is paid back in a series of periodic payments.

When money is borrowed it is especially important to understand how the loan is repaid. The cost of borrowing money depends on three factors:

- the amount of money borrowed
- the interest rate charged by the lending institution
- the length of time over which the money will be repaid

amortization To illustrate the cost of borrowing we will calculate the interest charges incurred by Jan Diego when she borrowed \$2,500 to purchase furnishings and appliances. This type of analysis is called amortization. *Amortization* is a method of computing equal periodic payments for an installment loan. Each installment loan, or payment is the same and consists of the amount borrowed, which is called the principal, the interest rate, and the number of monthly payments. For our example, the principal is \$2,500, interest rate is 15%, and the number of payments is 36 (12 monthly payments for 3 years). The worksheet then calculates the monthly payment to be \$86.66. This means that Jan must make 36 monthly payments of \$86.66 each. The worksheet also displays how each payment is divided between paying interest and principal:

	A	B	C	D	E	
1	Loan Amortization Table					
2						
3	Interest rate =	15%		Monthly payment =	\$86.66	
4	Number of payments =	36				
5	Principal =	\$2,500.00		Total paid =	\$3,119.88	
6				Total interest =	\$619.88	
7						
8		Payment	Principal	Pay to Interest	Pay to Principal	
9					Principal Owed	
10		1	\$2,500.00	\$31.25	\$55.41	\$2,444.59
11		2	\$2,444.59	\$30.56	\$56.11	\$2,388.48
12		3	\$2,388.48	\$29.86	\$56.81	\$2,331.67
13		4	\$2,331.67	\$29.15	\$57.52	\$2,274.16
14		5	\$2,274.16	\$28.43	\$58.24	\$2,215.92
15		6	\$2,215.92	\$27.70	\$58.96	\$2,156.96
16		7	\$2,156.96	\$26.96	\$59.70	\$2,097.25
17		8	\$2,097.25	\$26.22	\$60.45	\$2,036.81
18		9	\$2,036.81	\$25.46	\$61.20	\$1,975.60
19		10	\$1,975.60	\$24.70	\$61.97	\$1,913.63
20		11	\$1,913.63	\$23.92	\$62.74	\$1,850.89
21		12	\$1,850.89	\$23.14	\$63.53	\$1,787.36
22		13	\$1,787.36	\$22.34	\$64.32	\$1,723.04
23		14	\$1,723.04	\$21.54	\$65.13	\$1,657.92
24		15	\$1,657.92	\$20.72	\$65.94	\$1,591.98
25		16	\$1,591.98	\$19.90	\$66.76	\$1,525.22
26		17	\$1,525.22	\$19.07	\$67.60	\$1,457.62
27		18	\$1,457.62	\$18.22	\$68.44	\$1,389.17
28		19	\$1,389.17	\$17.36	\$69.30	\$1,319.88
29		20	\$1,319.88	\$16.50	\$70.16	\$1,249.71
30		21	\$1,249.71	\$15.62	\$71.04	\$1,178.67
31		22	\$1,178.67	\$14.73	\$71.93	\$1,106.74
32		23	\$1,106.74	\$13.83	\$72.83	\$1,033.91
33		24	\$1,033.91	\$12.92	\$73.74	\$960.17
34		25	\$960.17	\$12.00	\$74.66	\$885.51
35		26	\$885.51	\$11.07	\$75.59	\$809.91
36		27	\$809.91	\$10.12	\$76.54	\$733.37
37		28	\$733.37	\$9.17	\$77.50	\$655.88
38		29	\$655.88	\$8.20	\$78.46	\$577.41
39		30	\$577.41	\$7.22	\$79.45	\$497.97
40		31	\$497.97	\$6.22	\$80.44	\$417.53
41		32	\$417.53	\$5.22	\$81.44	\$336.09
42		33	\$336.09	\$4.20	\$82.46	\$253.62
43		34	\$253.62	\$3.17	\$83.49	\$170.13
44		35	\$170.13	\$2.13	\$84.54	\$85.59
45		36	\$85.59	\$1.07	\$85.59	\$0.00
46						

A total of 36 * \$86.66 payments, which equals \$3,119.76 is required to repay the original \$2,500 loan. The total interest paid is \$3,119.76 - \$2,500, or \$619.76.

Examine this worksheet carefully because it contains many interesting and important details. First, note that when the first payment of \$86.66 is made \$31.25 is paid as interest and only \$55.41 to reduce principal. This means that the original amount owed, the principal of \$2,500, has been reduced by \$55.41. Second, note that as the principal (amount still owed) is reduced the interest paid also reduces. When payment 32 is made, only \$5.22 goes to interest and \$81.44 to reducing principal. From this data we realize that when money is borrowed and paid back, each payment pays both interest and reduces the principal. Note that the early payments pay more interest and reduce the loan less than the later payments which pay less interest and reduce the loan by a greater amount.

Practice 5

① OPEN LOAN

Open LOAN, which is a data file for this chapter.

② ANSWER WHAT IF? QUESTIONS

Test the results of financing \$2,500 at different interest rates. Enter a principal of \$2,500 and 36 for the number of payments. Change the interest rate from 10% to 24% in 2% increments. Note that you will enter eight separate interest rate values. Using paper and pencil record the Monthly payment and Total interest paid for each interest rate.

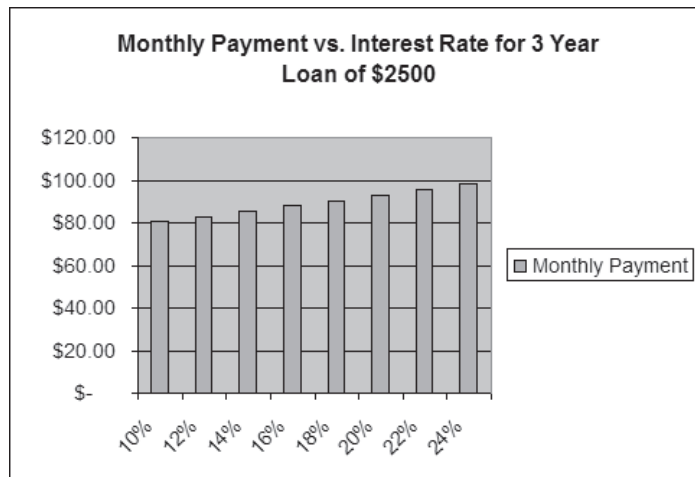
③ CREATE A NEW WORKBOOK

a. Create a new workbook and enter the data as shown below:

	A	B	C
1	Interest Rate	Monthly payment	Total interest paid
2			
3	10%		
4	12%		
5	14%		
6	16%		
7	18%		
8	20%		
9	22%		
10	24%		

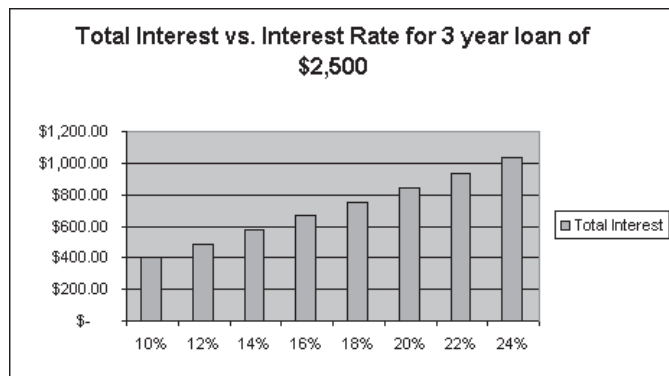
- b. Use the data from step ② above to complete columns B and C in the worksheet.
- c. Save the workbook naming it: Intrates
- d. Create a column chart of Monthly payment versus Interest rate.

Check—Your chart should look similar to:



- e. Create a column chart of the total interest paid versus the interest rate.

Check—Your chart should look similar to:



- Using pencil and paper, write down a few conclusions you can draw from the charts in step ③, part d and e.
- Create a header with the date center aligned and a footer with your name right aligned.
- Print a copy of the worksheet with the charts.
- Save and close the modified workbook.

PF.8 Purchasing an Automobile

The first large purchase many people make is an automobile and there are a number of factors that need to be considered before the purchase is made. First, and most important is to answer the question: How much can you afford? Along with the car's purchase price, you need to consider the cost of car insurance, gas, and maintenance. Second, you need to consider what type of automobile to buy and the features it should include. Use consumer magazines and the Internet to research prices.

Your next decision is how to finance the car. The larger your down payment, the lower your monthly payments will be. Also, the interest rate you pay on a car loan will usually depend on the source from which you borrow. As a rule bank financing is usually less expensive than car dealer financing, but bank financing is harder to get, often requiring a credit history. Also, consider the length of the car loan. Most loans run from 2 to 5 years. The shorter the time of the loan the higher the monthly payments, but less money is spent in interest.

leasing a car

Many automobile dealers offer the option of leasing rather than purchasing an automobile. When leased, a car is owned by the agency holding the lease and the user pays a monthly fee for the use of the car. Most leases are set for a fixed time, for example four years, and a maximum number of miles the car may be driven, usually in the range of 12,000 to 15,000 miles per year. If the car is driven in excess of this limit an additional fee per mile is charged. At the end of the lease the car must be returned to the lease holder.

The leasing price is usually determined by taking the purchase price of the car minus the estimated value of the car at the end of the lease and then adding an interest charge. For example, if a \$20,000 automobile is leased for four years and its estimated value at the end of the lease is \$8,000, interest will be charged on the balance of \$12,000. Assuming an interest rate of 15% the interest charges are \$4,030 for the term of the lease and the monthly payments are \$334.

The advantage of a lease is that a low or no down payment is usually required, but the disadvantage is that it is usually more expensive to lease than to own a car. Owning is almost always better if you plan to keep the car for an extended period of time, well over the four year lease time. It is important to realize that when you purchase an automobile you own it—the car is yours, and may be sold by you at any time. When you lease a car you are in effect renting it. Whichever you choose it is important to calculate carefully the cost of each option.

Practice 6

① OPEN LOAN

Open LOAN, which is a data file for this chapter.

② CALCULATE THE NUMBER OF PAYMENTS

- You would like to purchase a \$32,000 BMW but do not want the payments to exceed \$580 a month. Assuming you can finance the car at 9% interest, test different numbers of payments until you find one that produces approximately the desired monthly payment. Enter a Principal of \$32,000 and an Interest rate of 9.00%. Keep changing the number of payments until the monthly payment is acceptable. Note how many monthly payments will it take to pay off the loan and how much interest will be paid?
- You decide the BMW in Review 9 is a bit beyond your budget. The most your budget will allow is monthly payments of approximately \$250 a month for 48 months. If you can obtain a car loan at 8.0%, test different principals until you find one that comes close to what you can afford. How expensive a car can you afford? How much interest will you pay?
- Save and close the modified workbook.

PF.9 Long-Term Borrowing

mortgage

The factors determining the cost of a long-term loan are the same as those for a short-term loan. An example of a long-term loan would be the purchase of a house which costs \$120,000. An installment loan used to purchase a house is usually called a *mortgage*. Many lending institutions require the buyer to put down approximately 20% of the purchase price, which in the house example would be \$24,000. This leaves \$96,000 to be borrowed. Assuming an annual interest rate of 7.0% and that 20 years (or 240 months) will be used to repay the loan the calculations for the first, tenth, and twentieth years are shown on the next page:

	A	B	C	D	E	
1	House Loan Amortization Table					
2						
3	Interest rate =	7%				
4	Number of payments =	240				
5	Principal =	\$96,000.00				
6						
7	Monthly payment =	\$744.29				
8						
9	Total paid =	\$178,628.87				
10	Total interest =	\$82,628.87				
11						
12		Payment	Principal	Pay to Interest	Pay to Principal	Principal Owed
13		1	\$96,000.00	\$560.00	\$184.29	\$95,815.71
14		2	\$95,815.71	\$558.92	\$185.36	\$95,630.35
15		3	\$95,630.35	\$557.84	\$186.44	\$95,443.91
16		4	\$95,443.91	\$556.76	\$187.53	\$95,256.38
17		5	\$95,256.38	\$555.66	\$188.62	\$95,067.75
18		6	\$95,067.75	\$554.56	\$189.73	\$94,878.03
19		7	\$94,878.03	\$553.46	\$190.83	\$94,687.20
20		8	\$94,687.20	\$552.34	\$191.95	\$94,495.25
21		9	\$94,495.25	\$551.22	\$193.06	\$94,302.19
22		10	\$94,302.19	\$550.10	\$194.19	\$94,107.99
23		11	\$94,107.99	\$548.96	\$195.32	\$93,912.67
24		12	\$93,912.67	\$547.82	\$196.46	\$93,716.21

...

121	109	\$68,382.95	\$398.90	\$345.39	\$68,037.57
122	110	\$68,037.57	\$396.89	\$347.40	\$67,690.17
123	111	\$67,690.17	\$394.86	\$349.43	\$67,340.74
124	112	\$67,340.74	\$392.82	\$351.47	\$66,989.27
125	113	\$66,989.27	\$390.77	\$353.52	\$66,635.76
126	114	\$66,635.76	\$388.71	\$355.58	\$66,280.18
127	115	\$66,280.18	\$386.63	\$357.65	\$65,922.53
128	116	\$65,922.53	\$384.55	\$359.74	\$65,562.79
129	117	\$65,562.79	\$382.45	\$361.84	\$65,200.95
130	118	\$65,200.95	\$380.34	\$363.95	\$64,837.00
131	119	\$64,837.00	\$378.22	\$366.07	\$64,470.93
132	120	\$64,470.93	\$376.08	\$368.21	\$64,102.72

...

241	229	\$8,601.81	\$50.18	\$694.11	\$7,907.70
242	230	\$7,907.70	\$46.13	\$698.16	\$7,209.55
243	231	\$7,209.55	\$42.06	\$702.23	\$6,507.31
244	232	\$6,507.31	\$37.96	\$706.33	\$5,800.99
245	233	\$5,800.99	\$33.84	\$710.45	\$5,090.54
246	234	\$5,090.54	\$29.69	\$714.59	\$4,375.95
247	235	\$4,375.95	\$25.53	\$718.76	\$3,657.19
248	236	\$3,657.19	\$21.33	\$722.95	\$2,934.23
249	237	\$2,934.23	\$17.12	\$727.17	\$2,207.06
250	238	\$2,207.06	\$12.87	\$731.41	\$1,475.65
251	239	\$1,475.65	\$8.61	\$735.68	\$739.97
252	240	\$739.97	\$4.32	\$739.97	\$0.00

Your attention should focus on a number of important details. First, note that \$96,000 borrowed at 7.0% interest and repaid in 240 monthly payments (20 years) requires payments of \$744.29 a month. Of the \$744.29 paid in the first month, \$560.00 is paid in interest and \$184.29 to reduce principal. This means that even after paying almost \$750 you still owe \$95,815.71. Compare this with month 229 where only \$50.18 goes to interest and \$694.11 to reduce principal. This is, of course, due to the fact that at this point only \$7,907.70 is still owed on the mortgage.

Early in a long-term mortgage most of the money paid goes to interest and very little to paying principal. This changes over the life of the mortgage. For example, after 10 years, payment 120 pays \$376.08 to interest and \$368.21 to reducing principal.

Note the two amounts, Total paid and Total interest, displayed near the top of the worksheet. Total paid is \$178,628.87, the total amount of money (principal and interest) paid over the life of the mortgage. The total interest paid is \$82,628.87. It is important to realize that almost as much money has gone to paying interest as to purchasing the house! This is usually the case with long-term mortgages.

Practice 7

① OPEN HOUSE LOAN

Open HOUSE LOAN, which is a data file for this chapter.

② ANSWER WHAT IF? QUESTIONS

- Enter a principal of \$96,000.00 and 240 for the number of payments. Enter different interest rates until you find one for which the Total paid is approximately twice the Total interest.
- Save the modified workbook and print a copy.
- Enter a principal of \$150,000.00, an interest rate of 5%, and 180 for the number of payments. Using paper and pencil record the Total interest.
- Change the Interest rate from 5% to 15% in 1% increments recording the Total interest for each. Note that you will enter eleven interest rate values.
- Save and close the modified workbook.

③ CREATE A NEW WORKBOOK

- Create a new workbook and enter the data as shown below:

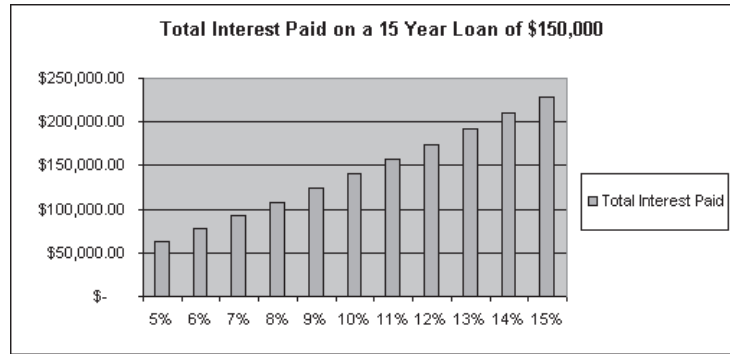
	A	B
1	Interest Rates	
2		
3	Interest Rates	Total Interest
4		
5	5%	
6	6%	
7	7%	
8	8%	
9	9%	
10	10%	
11	11%	
12	12%	
13	13%	
14	14%	
15	15%	

- Use the data from step ② part (d) above to complete column B in the worksheet.
- Save the workbook naming it: Intrate2

④ CREATE A COLUMN CHART

- Produce a bar chart of Total interest versus Rate.

Check—Your chart should look similar to:



b. Save the modified workbook.

PF.10 Your Right to Review Credit Information

We previously discussed the importance of having good credit. When you apply for credit your credit rating is checked using a data base which stores information about your past credit transactions. This “credit report” often stores additional information such as your employment history and possible legal problems. Both can be factors in determining your credit worthiness. How do you know if such information is accurate? To protect both your privacy and the accuracy of data stored about you, a number of laws have been passed:

- The Fair Credit Reporting Act of 1970 deals with data collected for use by credit, insurance, and employment agencies. The act gives individuals the right to see information maintained about them. If a person is denied credit he or she is allowed access to the files used to make the credit determination. If any of the information is incorrect, the person has the right to have it changed. The act also requires that only those people who have a court order or the written permission of the individual whose credit is being checked may access the records.
- The Financial Privacy Act of 1978 requires that a government authority have a subpoena, summons, or search warrant to access an individual’s financial records. When such records are released, the financial institution must notify the individual of who has had access to them.

PF.11 Saving Money and Compound Interest

Rule of 72

Dividing the interest rate paid on an investment into 72 will equal the amount of time it will take for your money to double. For example, if you are earning 9% interest your money will double in 8 years. If you are earning 3% interest it will double in 24 years.

When you save money in a bank savings account it earns interest which is added to the money you have deposited. Over time the interest itself earns interest which is called “compounding” and the money grows. It is important in producing a personal financial plan to include money to be saved. It is this money which will allow you to achieve long-term financial goals.

The worksheet below demonstrates the power of compounding interest. The amount to be saved each month and the annual interest rate is entered. It is assumed that interest is compounded monthly which means that the bank multiplies the balance of the account by 1/12 of the annual interest rate and adds that amount to the balance each month. The worksheet displays the accumulated savings (ending account balance) and total interest earned as well as monthly figures for a given number of years. The example below calculates the money made by making a monthly deposit of \$120 at an annual interest rate of 6% for a 5 year period. Only the first year and fifth year are displayed:

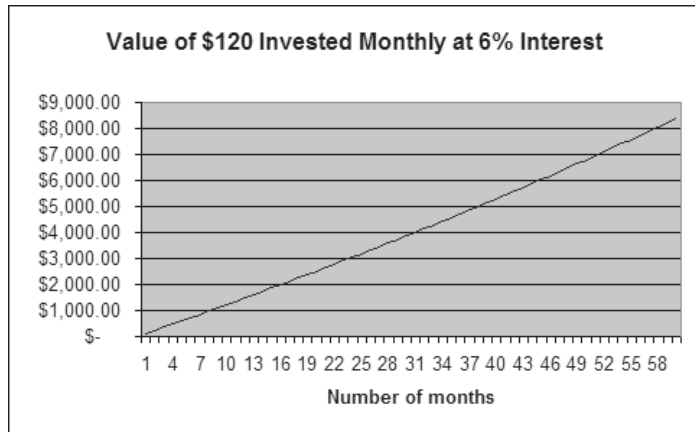
	A	B	C
1	Compound Interest		
2			
3	Monthly deposit:	\$120.00	
4	Annual interest rate:	6%	
5	Number of years:	5	
6	Ending account balance:	\$8,372.40	
7	Total interest earned:	\$1,172.40	
8			
9	Month	Interest Earned	Account Balance
10	1	\$ -	\$ 120.00
11	2	\$0.60	\$ 240.60
12	3	\$1.20	\$ 361.80
13	4	\$1.81	\$ 483.61
14	5	\$2.42	\$ 606.03
15	6	\$3.03	\$ 729.06
16	7	\$3.65	\$ 852.71
17	8	\$4.26	\$ 976.97
18	9	\$4.88	\$ 1,101.85
19	10	\$5.51	\$ 1,227.36
20	11	\$6.14	\$ 1,353.50
21	12	\$6.77	\$ 1,480.27

...

58	49	\$32.46	\$6,644.20
59	50	\$33.22	\$6,797.42
60	51	\$33.99	\$6,951.41
61	52	\$34.76	\$7,106.16
62	53	\$35.53	\$7,261.69
63	54	\$36.31	\$7,418.00
64	55	\$37.09	\$7,575.09
65	56	\$37.88	\$7,732.97
66	57	\$38.66	\$7,891.63
67	58	\$39.46	\$8,051.09
68	59	\$40.26	\$8,211.35
69	60	\$41.06	\$8,372.40

Note how the amount of interest earned each month grows over time. Only \$0.60 is earned after the first month, but \$41.06 is earned in the last (60) month. The \$41.06 is more than 30% of the monthly deposit. Given sufficient time the money earned in interest each month will exceed the amount being deposited.

The line chart below displays the value of the above investment over the 60 months:



Practice 8

① OPEN COMPOUND

Open COMPOUND, which is a data file for this chapter.

② ANSWER WHAT IF? QUESTIONS

a. Determine the ending balance and total interest earned for each of the following situations:

1. Monthly deposit of \$85.00 and annual interest rate of 5.5% for 5 years.
2. Monthly deposit of \$85.00 and annual interest rate of 5.5% for 3 years.
3. Monthly deposit of \$35.00 and annual interest rate of 7.0% for 5 years.
4. Monthly deposit of \$200.00 and annual interest rate of 6.2% for 5 years.

③ CREATE A COLUMN CHART

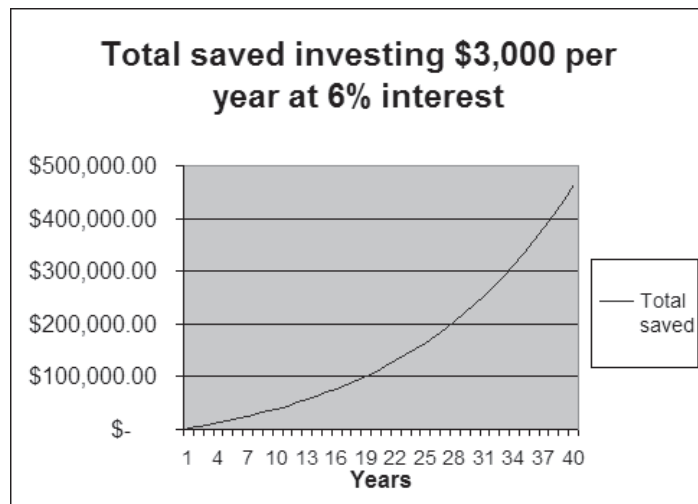
Create a column chart which display each month's balance for months 49 through 60 using the data from step ②, part (a), part (4).

④ SAVE AND CLOSE THE MODIFIED WORKBOOK

PF.12 Retirement Plans

Young people often believe that saving for retirement is a very low priority because their retirement is so far off. This can be a big mistake. As we learned in the previous section, money grows due to the power of compounding interest and the longer money is invested the more it grows. When Albert Einstein was asked what was the most amazing thing he had experienced he said "compound interest."

The government wants people to save for their retirements and has created plans which make saving easy and profitable. There are two very big advantages to saving through a retirement plan. First, the money contributed to a retirement plan is usually tax sheltered. This means no



Practice 9

① OPEN RETIRE

Open RETIRE, which is a data file for this chapter.

② ANSWER WHAT IF QUESTIONS

- Enter a yearly deposit of \$5,000, interest rate of 5%, and number of years of 30. Using paper and pencil record the Ending account balance.
- Change the Interest rate from 6% to 10% in 1% increments recording the ending account balance for each. Note that you will enter five more interest rate values.

③ CREATE A NEW WORKBOOK

- Create a new workbook and enter the data as shown below:

	A	B
1	Saving for Retirement	
2		
3	Interest rate	Ending account balance
4		
5	5%	
6	6%	
7	7%	
8	8%	
9	9%	
10	10%	

- Use the data from step ② above to complete column B in the worksheet.

④ CREATE A COLUMN CHART

Create a column chart which display the ending account balance for the appropriate interest rate. Include appropriate titles and axis labels.

⑤ SAVE AND PRINT THE WORKBOOK

- a. Save the workbook naming it: Retirement Savings
- b. Create a header with the date center aligned and a footer with your name right aligned.
- c. Print a copy.
- d. Close the workbook and quit Excel.

Chapter Summary

The primary purpose of a budget is to limit spending so that it does not exceed income and allows for savings. The purpose of saving is to achieve long-term goals. A budget contains two sections, income and expenses.

When data is graphed or presented in a chart, numeric trends often become obvious. The three most common types of charts are bar, line, and pie. Bar charts compare the differences between values; line charts show changes in a value over time; and pie charts show the relation between fractional parts that make up a whole amount.

To be effective a financial plan must be realistic and flexible. Factors such as inflation, changes in income, and availability of credit must be considered. Priorities must be set and decisions made in producing a budget. Expenses can be divided into fixed expenses, those paid on specified dates and in specific amounts, and variable expenses which fluctuate both in amount and when they need to be paid.

Taxes and inflation are major factors to be considered in preparing a budget. High rates of either taxes or inflation reduce the amount of money that can be saved.

Knowing how to establish and use credit wisely is an important skill. Most creditors or lenders want the lender to possess a credit history and a stable record of income. A good way to establish credit is to open checking and savings accounts and the best way to produce a good credit record is to pay loan payments on time.

Credit should be used with caution. When money is borrowed you should have a plan for paying it back. The cost of borrowing money depends on the amount of money borrowed, the interest rate charged, and the length of time over which the loan will be repaid.

When money is borrowed with an installment loan it is repaid in periodic payments. Each payment pays both interest and reduces the principal of the loan (the amount borrowed). Early payments pay more interest and reduce the principal less than later payments which pay less interest and reduce the loan by a greater amount.

When purchasing an automobile it is important to determine what you can afford and to consider the costs of car insurance, gas, and maintenance. The amount of the down payment, interest rate, and length of loan will determine how much you actually pay for the automobile.

The factors determining the cost of very long-term loans are the same as those for shorter term loans. Early in a long-term loan or mortgage most of the money paid goes to interest and little to paying principal.

When you apply for credit your credit rating is checked. To protect your privacy and the accuracy of data stored about you, a number of laws have been passed including the Fair Credit Reporting Act of 1970 and the Financial Privacy Act of 1978.

When you save money it earns interest which is added to the money you have deposited. Over time the interest earns interest which is called compounding.

Because of the power of compounding interest it is important to begin saving for retirement when you are young. The primary advantage of saving in a retirement plan is that the money in the plan, including the interest is not taxed until the money is finally withdrawn at retirement.

Vocabulary

Amortization A process used to reduce a loan (or other debt) by a series of periodic payments which pay both interest and principal.

Annual Percentage Rate (APR) Annual interest rate on a loan or investment.

Budget A plan of how money is to be spent and saved.

Chart Graphical illustration of numeric data.

Collateral Something of value which is used to guarantee repayment of a loan.

Column chart In Excel, a vertical bar chart.

Compound interest Interest earned on previously earned interest.

Cosigner A second party who guarantees to repay a loan if the original borrower is unable to.

Credit The ability to borrow money.

Fixed expenses Expenses which do not change in value.

Gross pay Income before any taxes or other deductions are subtracted.

Inflation Economic condition which occurs when prices rise due to an increase in the amount of money available.

Inflation rate The rate at which the cost of goods and services increase.

Installment loan A loan that is repaid in periodic payments.

Interest Percentage of dollar amount. Interest is paid on savings and other investments, and charged on loans.

Mortgage Long term installment loan used to purchase property.

Net pay Income after taxes and other deductions have been subtracted.

Principal The amount of money owed on a loan.

Taxes Money collected by the government to finance its many activities.

Variable expenses Expenses which can vary.

Review Questions

Sections PF.1 — PF.4

1. a) What is the primary purpose for producing a budget?
b) List an advantages of storing a budget in a worksheet.
2. List an example when each type of chart would be appropriate for displaying worksheet data.
3. To be effective, what factors must a personal financial plan consider?
4. What steps are required to produce a personal financial plan?
5. List four long-term financial objectives you have.
6. a) What is the difference between fixed and variable expenses?
b) List three examples of each.
7. If a coat currently costs \$75.00, what will it cost in three years if the rate of inflation is:
a) 2% per year?
b) 3% per year?
c) 5% per year?
8. Explain why inflation is especially difficult for retired people who live on a fixed income (their yearly income does not change)?
9. What is the difference between gross and net pay?

Sections PF.5 — PF.7

10. Using the tax schedules shown in Section PF.5 calculate the net pay for the following salaries. Deduct federal, social security, and state taxes.
a) \$32,800
b) \$17,500
c) \$21,400
11. Briefly explain how a person establishes credit.
12. How do you keep a good credit rating?
13. a) When should credit be used?
b) When should credit not be used?

14. What factors determine the cost of borrowing money?
15. When \$5,000 is borrowed at an interest rate of 12% for 2 years the monthly payment is \$235.37. How much money is paid in interest over the life of the loan?
16. If you borrow \$15,000 at an annual interest rate of 15%, which costs less: paying the loan off in 24 months or 36 months? Why?
17. Financing \$20,000 to purchase an automobile over 36 months at an interest rate of 5% has a monthly payment of \$599.42. If the interest rate is 8% the payment is \$626.73. What is the difference in the total amount paid for the two interest rates?
18. When financing a home what factors determine the size of the monthly payments?
19. You want to take out a 7% mortgage of \$150,000 to purchase a house. If you receive a 15 year mortgage the monthly payments are \$1,348.24. If you receive a 30 year mortgage the monthly payments are \$997.95. How much money do you save with the 15 year mortgage?

Sections PF.10 — PF.12

20. If you believe incorrect information is stored in your credit records what rights do you have to have the information corrected?
21. What must a government agency do to gain access to a person's financial records?
22. What is compounded interest?
23. If you deposit \$200 a month in a savings account that pays 6% interest compounded per year, how much money will you have after 3 years?
24. What are two advantages of saving through a retirement plan?
25. Why is it important to start saving for retirement when you are young?

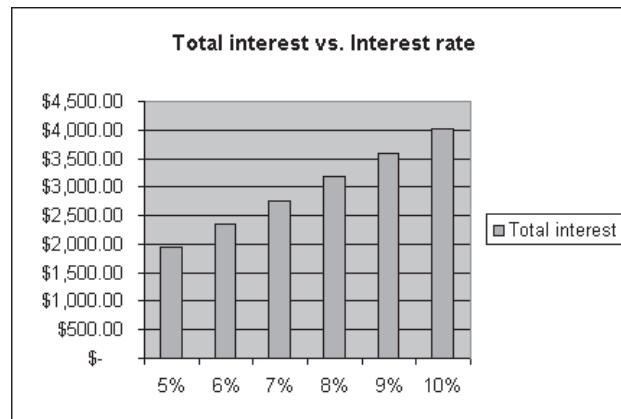
Exercises

Exercise 1

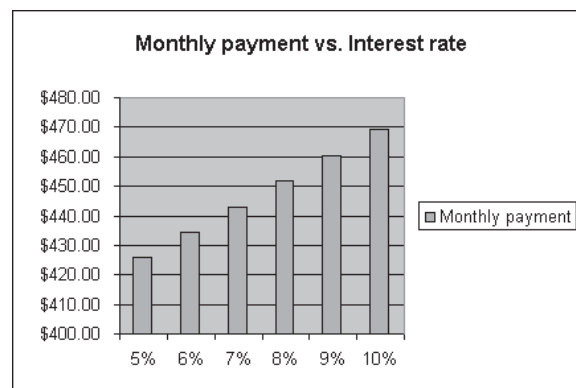
LOAN, Automobile

In financing an automobile the interest rate and the number of payments make a significant difference in the cost of the loan and the size of the monthly payments. Open LOAN and complete the following steps:

- Enter Principal = \$18,500 and No. of payments = 48.
- Enter Interest rate = 5% and record with a paper and pencil the Total Interest and the Monthly Payment.
- Enter interest rates of 6% to 10% in increments of 1% recording the corresponding Total Interest and Monthly Payment.
- Create a new workbook. Enter the Interest rate (5% to 10%) in column A, the Total interest in column B and the Monthly Payment in column C.
- Save the workbook naming it: Automobile
- Produce a column chart of Total interest versus Interest rate. Include the title and legend as shown below:



- Produce a column chart of Monthly payment versus Interest rate. Include the title and legend as shown below:

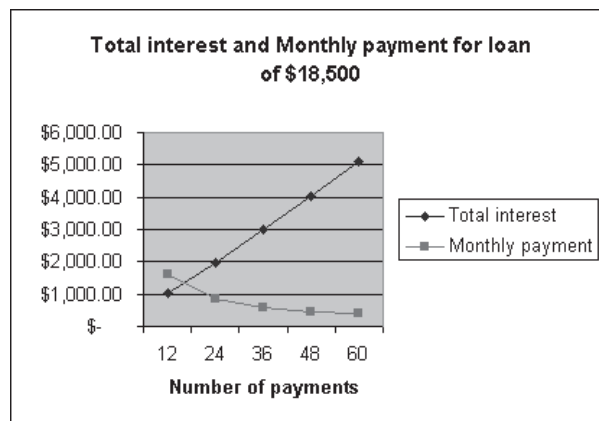


Exercise 2

LOAN, Payment

A second important factor in determining the cost of automobile financing is the number of payments made. Open LOAN and complete the following steps:

- Enter Principal = \$18,500.00 and Interest rate = 10%
- Enter No. of payments = 12 and record with paper and pencil Total interest and Monthly payment.
- Enter No. of payments = 24, 36, 48, 60 and record the corresponding Total interest and Monthly payment.
- Create a new workbook. Enter No. of payments in column A, Total interest in column B, and Monthly payment in column C.
- Save the workbook naming it: Payment
- Produce a line chart of Total interest and Monthly payment versus No. of payments. Include the title, axes labels, and legend as shown below:



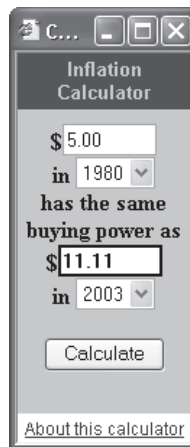
Exercise 3

College students typically live on a budget. Use the Internet, newspapers, and college calendars to research the expenses a typical college student living away from home would have, such as books, food, rent, and so on. Use your research to complete the following steps:

- Create a new workbook and enter appropriate labels and the expense data.
- Produce a pie chart that illustrates each expense as a percentage of the total expenses. Include an appropriate title and legend.

Exercise 4

The U.S. Department of Labor, Bureau of Labor Statistics Web site, www.bls.gov, contains a link to an Inflation Calculator, which compares the buying power of a dollar value in two different years:



- Use the Inflation Calculator to calculate the buying power of \$10 in the years 1970, 1980, 1990, and 2000 compared to the current year.
- Enter the data collected in step (a) into a worksheet.
- Produce a line chart on the active sheet that displays the buying power of \$10 in the years 1970, 1980, 1990, and 2000 compared to the current year. Include an appropriate title and axes labels.

Exercise 5

There are different interest rates for different types of credit. Interest rates also vary from lender to lender and from person to person. Interest rates reflect the credit history of borrowers, for example, high risk borrowers pay higher interest rates. When making purchasing and credit decisions, you should compare interest rates from different lenders. To illustrate the difference in interest rates, complete the following steps:

- Use the Internet to find the interest rate for four different credit card companies.
- Produce a column chart that illustrates the different credit rates offered by specific credit card companies. Include an appropriate title, legend, and axes labels.

- 401(k) PF-22
- amortization PF-12
- Annual Percentage Rate PF-11
- APR PF-11
- automobile, financing PF-15
- bank financing PF-15
- bar chart PF-2
- bonuses PF-3
- borrowing
 - cost of PF-12
 - long-term PF-16
- budget PF-1
 - creating a personal PF-1
 - purpose of PF-1
- calculating taxes PF-8
- car, financing PF-15
- chart PF-2
 - bar PF-2
 - column PF-2
 - horizontal bar PF-2
 - line PF-2
 - pie PF-2
 - vertical bar PF-2
- column chart PF-2
- compound interest PF-20, PF-21, PF-22
- Congress PF-8
- cosigner PF-10
- credit
 - calculating the cost of PF-12
 - establishing PF-10, PF-11
 - good PF-10, PF-11, PF-19
 - history PF-15
 - record PF-11
 - report PF-19
- credit card
 - about PF-11
 - debt PF-11
 - interest rates PF-11
- creditors PF-10
- debt
 - credit card PF-11
 - personal PF-11
- dividends PF-3
- expense PF-2
- Fair Credit Reporting Act PF-19
- federal taxes PF-8
- FICA PF-8
- financial plan PF-3
- Financial Privacy Act PF-19
- financial projections PF-5
- fixed expense PF-2, PF-3
- gifts PF-3
- goals, long-term PF-1
- gross pay PF-9
- horizontal bar chart PF-2
- income PF-2
 - taxes PF-8
- Individual Retirement Accounts PF-22
- inflation PF-3, PF-5
 - in Canada PF-5
 - in United States PF-5
 - rate PF-5, PF-6, PF-7
- inheritances PF-3
- interest PF-2, PF-3
- interest rate PF-11, PF-12, PF-15
- Keoghs PF-22
- leasing a car PF-15
 - advantages PF-16

- leasing price PF-16
- line chart PF-2
- loan
 - long-term PF-16
 - short-term PF-16
- local taxes PF-8
- long-term
 - borrowing PF-16
 - goals PF-1
 - loan PF-16
 - objectives PF-3, PF-7
- mortgage PF-16, PF-17, PF-18
- net pay PF-9
- objectives
 - long-term PF-3, PF-7
 - short-term PF-3
- personal debt PF-11
- pie chart PF-2
- property taxes PF-8
- retirement plans PF-21
- retirement, saving for PF-21
- Rule of 72 PF-20
- sales taxes PF-8
- saving money PF-20
- short-term
 - loan PF-16
 - objectives PF-3
- social security taxes PF-8
- state taxes PF-8
- tax sheltered PF-21, PF-22
- taxes PF-8
 - calculating PF-8
 - federal PF-8
 - income PF-8
 - local PF-8
 - property PF-8
 - sales PF-8
 - social security PF-8
 - state PF-8
- variable expense PF-2, PF-3
- vertical bar chart PF-2
- What If? question PF-2