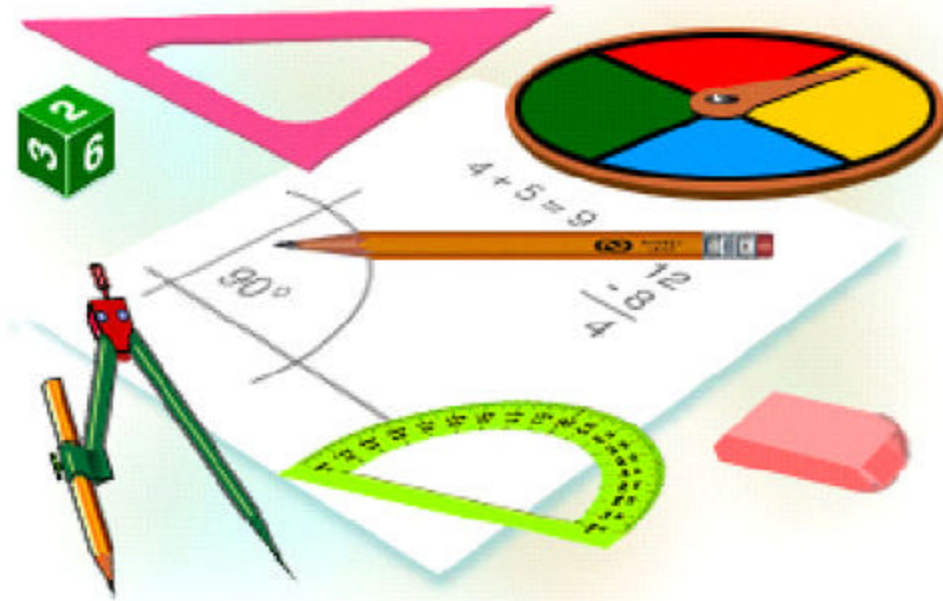


The Next Step

Mathematics Applications for Adults



Book 14019 – Personal Finance

OUTLINE

Mathematics - Book 14019

Personal Finance
<u>Income</u>
calculate gross annual income based on hourly, weekly, bi-monthly or monthly wages.
explain and calculate overtime pay, piece work, and commission.
describe other monies earned, such as fees, tips, pensions, and bonuses.
name possible deductions from wages.
explain and calculate net income.
correctly fill out a current TD1 income tax form.
calculate income tax in straight forward situations.
explain the disadvantages of selling tax refunds to income tax preparers.
<u>Money Management</u>
explain different kinds of goals: immediate, short-range, long-range.
discuss the need for and advantages of prioritizing goals and managing money.
describe process of managing finances: planning, organizing, budgeting, and controlling.
prepare sample budgets, given appropriate information.
name types of credit.
explain advantages and disadvantages of using credit.
<u>Banking</u>
name, compare, contrast kinds of Canadian financial

institutions.
list services offered by banks, etc.
name and describe four types of bank accounts.
fill in a variety of banking forms.
balance a sample account, given appropriate information.
<u>Calculating Interest</u>
calculate simple interest for loans and savings.
calculate the total amount required to repay a loan.
use compound interest tables to determine amount total due on a loan or total payable on an investment.
use amortization tables to make calculations involving mortgages.
<u>Problem Solving with Personal Finance</u>
solve multi-step problems requiring the performance of any combination of mathematical operations involving personal finance, with or without a calculator.

THE NEXT STEP

Book 14019

Personal Finance

Income

The Worker

People work to earn a living. They put forth effort to produce goods or to provide services for which they will receive wages. They use the money earned to buy other goods and services that they need or want.

Throughout the nineteenth century and the beginning of the twentieth century, it was uncommon for middle and upper class women to work outside the home. Women who were hired to work as factory hands, domestic servants, sales clerks or schoolteachers usually were single or poor. At that time it was a status symbol for men to be able to keep their wives at home to care for the house and children. World War II changed all that. The shortage of manpower made it necessary for single and married women to enter the labor force as well as the service sector of the economy. Today most eligible family members work to obtain necessities as well as desired luxuries.

During the early days of industrialization people worked long hours and received low wages. Because of poor working conditions, factories were called “sweat shops”. As the years went by, workers joined together to improve their working conditions and to bargain for more pay. The *Employment Standards Act* provides that persons must be paid a minimum hourly wage. They cannot be employed for more than forty-four hours a week unless they are paid overtime. Employment of children under the age of sixteen is prohibited. Employment of children under sixteen years of age is allowed only under specified conditions.

Hourly Wages

Many workers are paid an hourly wage. They receive a certain amount of money for each hour that they work. At the present time, the minimum hourly wage set by the Federal government is \$5.90. It is the lowest legal rate of pay per hour in most types of work. A person’s total weekly wages are based on the number of hours that he works each week. The total amount of money earned is called *gross pay*. A formula that may be used to compute gross pay is:

Number of Hours Worked x Hourly Rate = Gross Pay

To compute total gross pay with overtime, use the following four steps:

1. $44 \times \text{Hourly Rate} = \text{Regular Pay}$
2. $\text{Total Hours Worked} - 44 = \text{Overtime Hours}$
3. $\text{Overtime Hours} \times \text{Overtime Rate} = \text{Overtime Pay}$
4. $\text{Regular Pay} + \text{Overtime Pay} = \text{Total Gross Pay}$

The minimum wage rate is \$5.90 per hour for all hours of work up to and including 44 hours in a week; the minimum overtime rate payable for each hour worked in excess of 44 hours per week is \$8.85.

Effective August 1, 2002, the minimum wage rate will be \$6.00 per hour for all hours of work up to and including 44 hours in a week.

EXAMPLE NO. 1

If a minimum wage employee works 50 hours in one week:

$$44 \text{ hrs} \times \$5.90/\text{hr.} = \$259.60$$

$$50 - 44 = 6 \text{ hrs.} @ \$8.85/\text{hr.} = \$ 53.10$$

$$\text{Total Minimum Wage} = \$312.70$$

EXAMPLE NO. 2

If an employee paid at \$6.50 per hour works 50 hours in a week:

$$44 \text{ hrs.} \times \$6.50/\text{hr.} = \$286.00$$

$$50 - 44 = 6 \text{ hrs.} \times \$8.85/\text{hr.} = \$ 53.10$$

$$\text{Total Minimum Wage} = \$339.10$$

The same process applies for any hourly rate of pay between \$5.90/hr. (the minimum wage rate) and \$8.85/hr. (the minimum overtime wage rate).

All employees who are paid salary, commission or by the piece shall receive at least the minimum wage for all hours worked under the control of the employer.

Piecework involves work done by the piece and paid for at a set rate per unit. For example, a worker could be employed to knit mittens and paid a set amount for each pair produced.

Salary and Commission

Not all workers are paid an hourly rate. Teachers, government employees, and many other workers receive an annual salary paid by their employers in equal amounts weekly, biweekly, monthly, or semimonthly. This is a guaranteed wage and does not depend upon the number of hours that they work.

Example 1: Mr. Smith receives an annual salary of \$18,000. What amount does he earn each month?

Solution: Annual Salary \div 12 = Monthly Salary

$$\$18,000 \div 12 = \$1,500$$

Example 2: Marie receives a salary of \$240 each week. What is her annual salary?

Solution: $52 \times \text{Weekly Salary} = \text{Annual Salary}$

$$52 \times \$240 = \$12,480$$

Many people are hired to sell goods produced by others. Pay received by salesmen is called *commission*. Sometimes the commission is a certain amount for each article sold. Other times it is a percentage of the dollar value of the sales. Frequently salesmen receive graduated commissions. This means that the rate of commission increases as the amount of merchandise sold increases. For example, the rate of commission may be 8% on all sales up to \$10,000 and 10% on all sales over \$10,000. In many cases a salesman receives a fixed salary plus a commission.

Example 3: A salesman who works on a commission basis receives 15% of his sales. How much was his commission on a sale amounting to \$540?

Solution: $.15 \times \$540 = \81.00 Commission

Example 4: Roy sells magazine subscriptions. He receives a weekly salary of \$85 plus a commission of \$.20 for each subscription that he sells. In one week he sold 350 subscriptions. How much did he earn?

Solution: $$.20 \times 350 = \70.00 Commission

$$\$85 + \$70 = \$155.00 \text{ Total Amount Earned}$$

Example 5: Amy earned a 9% commission on the first \$850 of weekly sales, and a 12% commission on all sales over \$850. Last week her total sales were \$2,500. How much commission did she receive?

Solution:

$$.09 \times \$850 = \$76.50$$

$$\$2,500 - \$850 = \$1,650$$

$$.12 \times \$1,650 = \$198.00$$

$$\$76.50 + \$198.00 = \$274.50$$

Amy earned \$274.50 commission.

Federal Income Tax Deductions

The total amount of money that a worker earns is called *gross pay*. The amount of money that he receives in his paycheck is called *net pay* or *take-home pay*. In most cases net pay is not the same as gross pay. Employers are required by law to deduct a specified amount from every worker's gross pay to send to the Federal government for income tax. The amount withheld from a person's paycheck is determined by the size of his income, his marital status, and the number of persons who depend on the worker for their support. This information is passed on to the employee in his paycheck. For income tax purposes, all employers are required by law to prepare a T4 slip stating the employee's gross earnings and deductions from

the employee's gross earnings. One copy of the slip is kept by the employee, and the other is sent to the government as part of the employee's tax return. All employers are required by law to keep an employee's record for up to 36 months after the employee does the work for which the records were prepared. Therefore, if you had several employers during the year, you are required to receive a T4 slip from each one of them.

⇒ *To find out more about income tax, please contact your local Service New Brunswick or Canada Post offices. You may also access the latest General Tax Guide at the Canada Employment and Immigration website: <http://www.ccr-aadrc.gc.ca/formspubs/prioryear/t1/2000/menu-e.html>*

⇒ *All of the forms that you need to complete your income tax return may be found at the site above, including a Tax Exemption Return form or TD1. This form may be filled out by individuals who, depending on their current life circumstance (disabled, dependent, student, etc.), may be eligible to receive a reduction in the amount of tax that they must pay.*

Where can you get the best help to keep your taxes as low as possible - without getting into trouble with the Canada Customs and Revenue Agency?

There isn't anyone who will be more motivated than you in keeping your taxes to a minimum. Nor is there anyone else who truly understands your risk tolerance with regard to financial risk and to the risk of an audit or some other kind of confrontation with the dreaded taxman. If you could spend the time and were so inclined, you would be the best possible tax guru for your family.

There are many information sources that you can use to get ideas to reduce your taxes. At least half a dozen magazines offer monthly tips on saving taxes. There are dozens of consumer/taxpayer newsletters available. The bookstore or the library will have hundreds of books on how to save taxes. If you have access to the internet, you can find many thousands of free sources of information about various aspects of taxes. All you need to make use of these resources is a little bit of money, a lot of time and some serious motivation.

However, there are two problems with doing-it-yourself in addition to the time that's required. The first is that you need to overcome the language barrier, which can be a formidable task. The second is that you need to have a personal interest in the subject. Frankly, a great many people just don't want to get bogged down in the confusion of the tax laws and the quasi-devious ways of trying to beat the tax collector out of a few bucks. It's one thing to spend a few hours with a consultant once or twice a year, but it's something else to make it into a personal crusade or part time job.

Tax Planning Versus Tax Preparation

Few people seem to think about the difference between tax preparation and tax planning, but most people seem to expect a tax preparer to be able to help them “save taxes”.

Preparing a tax return and finding legal ways to pay less taxes are totally different processes. First of all, almost anyone with a calculator can prepare a tax return by following the instructions in your General Tax Guide. Preparing a tax return is a lot like cooking. In both cases, you can do it by carefully following the instructions, but it's a lot faster and less frustrating when you have had a lot of experience. But experience in preparing a tax return isn't the same as having experience in helping taxpayers to find legal ways to reduce their taxes. Because most people don't utilize very many legal methods of tax avoidance, most tax preparers don't get to see many examples of how it's done.

Finding ways to legally avoid taxes involves knowing the law, knowing what has been tried and failed, and knowing the penalties for being too aggressive.

Who Should Help You To Find Ways To Avoid Taxes?

People who prepare tax returns may not be interested in helping you to find ways to pay less taxes. There's a lot less expense, time, stress, work and potential risk from just filling out your tax return according to the General Tax

Guide instructions. A great many tax preparers seem to believe that any deviation from the General Tax Guide's instructions is going to get them and their clients in trouble.

At first blush, a great many clients presume that they have to pay a fee to someone, so they conclude it would be cheaper to get their advice from the person who is getting the fee. Why not make the preparer "earn" their fee? There are three problems with that.

First, the best advice may be to not hire a tax preparer at all, in which case there won't be any fees to pay. Do it yourself.

Secondly, there may be other ways to get the same help at a much lower cost, without a fee to anyone. Examples include charitable or non-profit organizations that volunteer to help people with their tax returns.

Third, there may be entirely different ways to accomplish the same goal. Do research and explore all possibilities.

When you hire consultants to give you some advise, **you will get the best advise at the least cost by doing two things.** First, define your questions or objectives very precisely. Second, spend most of your time searching for the consultant with the best reputation as a specialist in the subject. As a general rule, a specialist is someone who devotes 50% or more of their time to a particular subject speciality. The major benefit of a specialist is that they will

accomplish a specific task much faster than a non-specialist and will usually do a better job for you. A financial planner is more of a financial generalist, but there are some financial planners who focus on taxes rather than on investments. For general tax advice, a Certified Public Accountant who is also a financial planner (on a fee only basis) is likely to be able to give you the best tax advice at the least cost.

But the most cost effective way to find ways to legally reduce your taxes is by learning to be your own tax advisor. You can do that by subscribing to a number of the popular financial magazines like *Money*, *Worth*, *The Individual Investor* or various newsletters. You will learn a great deal by reading two or three books about tax planning and by learning to prepare your own tax return. Then, you can use the consultants to help you resolve confusing issues or to clarify things that aren't clear. You can also get a huge amount of free tax advice from various internet discussion groups.

If your time is more valuable than the fees charged by tax professionals, then it makes more sense to find an advisor who can help you to locate the tax breaks a lot faster than you can. Actually, if the professional can solve your problem in 1/10 of the time it would take you to do-it-yourself, and if that professional charges \$150 an hour, then using the professional would be cost effective as long as you are making more than \$15 an hour.

Good luck.

Selling a Refund

"Cash Back" is a service that allows you to "sell" your tax refund to a tax preparer so that you can receive your income tax refund in 24 hours or less during the January 1st to April 30th income tax filing season. Here's how it works:

You have a refund coming back from your income tax return this year. However, you don't want to wait for it, and you would like it now. So you bring your tax information to a tax preparer's office and tell him or her that you would like Cash Back. The tax preparer will review your information to determine if you qualify for this service. Qualification criteria includes having all the original copies of necessary T4's and other tax receipts.

The tax preparer prepares your tax return and will verify how much money you have coming back from the Canada Customs and Revenue Agency. If you qualify for Cash Back, the preparer will give you 85% of the first \$300 of your income tax refund and 95% of the rest. For example, if you have a \$600 refund, the amount you will receive is \$540. The \$60 fee covers the entire cost of the Cash Back service, including tax preparation.

The disadvantage, in this case, is that you're out \$60, but this is the cost that you are willing to pay in order to get your refund sooner.

Social Security Deductions

A person must pay a Social Security Tax during the years that he works. The money withheld from his paycheck for Social Security is used to provide (1) a retirement income (Canada Pension); (2) benefits for dependents of a worker who dies; (3) income for persons disabled because of illness or injury; and (4) medical costs for persons covered by Medicare.

Example: Jane earns \$375 per week. What amount is deducted from her earnings for Social Security tax?

Solution: $.067 \times \$375 = \25.125 or \$25.13 S. S. tax

1. A **fee** is a fixed sum charged, as by an institution or by law, for a privilege: *a license fee; tuition fees*. It is also a charge for professional services: *a surgeon's fee*.
2. A **tip** is a small sum of money given to someone for performing a service; a gratuity.
3. A **pension** is a sum of money paid regularly as a retirement benefit or by way of patronage.
4. A **bonus** is something given or paid in addition to what is usual or expected.
5. **Employment Insurance** is deducted from an employee's paycheck, and a percentage of this may be returned to the individual when they are unemployed.
6. **Union dues** can be deducted from a paycheck if the employee belongs to an organization of

workers joined to protect common interests and improve working conditions.

7. **Health insurance** is a benefit that some employers may offer their employees. The benefit allows the employee to receive a cut in medical expenses such as prescriptions or dental check-ups. Payment towards the policy is deducted from the employee's paycheck.
8. **Life insurance** is another benefit that an employer may offer an employee. The benefit provides some added security for the employee and their family should the employee be injured or lose his/her life while on the job. Payment towards the policy is deducted from the employee's paycheck.

Practice Exercise

Payroll Problems

1. Greg worked 39 hours last week at an hourly rate of \$14. Find the gross pay.

2. Brad worked the following hours during the week:
Monday 10 hours
Tuesday 1 hours
Wednesday 8 hours
Thursday 7 hours

Friday 10.25 hours

Calculate the gross pay at an hourly rate of \$11.25 plus time-and-a-half for any work hours over 40 per week.

3. Brad is paid \$49,000 annually. The pay period is biweekly. What is the salary per pay period?
4. Paul is paid \$74,000 annually. The pay period is monthly. What is the salary per pay period?
5. Paul receives a weekly salary of \$1614 plus earns a 25% commission on sales. What will the monthly gross earnings be if total sales for the month are \$15,303?
6. At the Daily News, employees paychecks can have the following deductions.

Federal Tax	22%	<i>Mandatory</i>
FICA Tax	9%	<i>Mandatory</i>
Provincial Tax	2%	<i>Mandatory</i>
401k	6%	<i>Optional</i>
Dental	3%	<i>Optional</i>
Health	7%	<i>Optional</i>
Life Insurance	1%	<i>Optional</i>

Calculate the net pay for the following employees...

Employee # 1 has a gross pay of \$863 and has optional deductions Dental, Health. _____

Employee # 2 has a gross pay of \$1,054 and has optional deductions 401k, Health, Life Insurance.

Employee # 3 has a gross pay of \$1,691 and has optional deductions none.

Employee # 4 has a gross pay of \$947 and has optional deductions 401k, Dental, Life Insurance.

7. Brad is paid \$82,000 annually. What is the weekly salary?

8. Carter's Construction pays its sales people the following commissions on all sales:

- 3% on the first \$3,000 in sales.
- 5% on the next \$2,000 in sales.
- 7% on the next \$5,000 in sales.
- 7% on any sales over \$12,000.

How much in commissions are earned by the following employees:

(Calculate to the nearest cent)

Employee	Sales	
Employee # 1	\$9,767	_____
Employee # 2	\$6,549	_____

Employee # 3 \$7,060 _____

Employee # 4 \$11,045 _____

Employee # 5 \$5,310 _____

9. Determine the total hours worked by Brad if the hourly rate is \$42 and the total gross pay is \$483.

10. Determine the total hours worked by Albert if the hourly rate is \$39 and the total gross pay is \$468.

Money Management

The family is a basic social unit and most families do have a core of parents and children. There are seven C's of family. In family living, *cooperation* is important. It means that every family member has a position and fulfills the duties it implies. Each respects other members of the family. Cooperation is a two-way deal, you give a little, take a little and everybody benefits. *Communication* channels should always be open. Two-way communication helps a family avoid misunderstandings and hurt feelings. Some families keep communication lines open by setting aside a special time when everyone can get together to exchange ideas and contribute to decision making. Other families get together casually as problems arise. However

they go about it, families need to get problems out in the open. In a healthy family atmosphere, the channels of communication are always open. Communication is always easier when family members share interests.

Confidence is honesty, trust and dependability. Confidence of family members grows as each shows that he or she possesses these above characteristics. If a family member needs to talk to someone outside the family a friend or a professionally trained counselor should be used. Such a person can be trusted to treat the family's problems confidentially. Any member of a family may from time to time find his or her load too heavy to bear alone. At such times it is support and *concern* that is shown by other family members that makes each one feel a worthwhile part of the family. The concern that family members show for one another is an indication of the strength of a family.

Commitment is the acceptance of a charge or trust. In family life this means the acceptance of lifetime concern for other family members, acceptance of all the burdens and joys that come to the family. Parents generally understand that commitment is necessary for happy family living. Everybody likes to feel independent to some degree, but in family groups that are committed to the well-being of the family, everyone pulls together during life's difficult times.

Teenagers think of *companionship* as the paring off of two people in a friendship. They see their parents as companions of one another and feel that they must look beyond the family circle for companionship. In one way

this is right. In the search for companionship, many friendships outside the home are usually desirable. There is a companionship within the home which members of families experience. Certainly there is companionship in family life and the family that shares with each other in this form of companionship knows a great deal of the happiness family life can bring.

Consideration, as applied to family living, means that family members are thoughtful of the rights and feelings of others. Perhaps, if there is one place where children as a group fail in their contribution to family living, it is in consideration. This may be caused by thoughtlessness. Family members are considerate when they sympathize with others who are in trouble. When their concern is deeper than sympathy, they have empathy. This means that they understand how other family members feel.

Different families have different resources. For example, their incomes vary. Money usually comes to the family as wages or salary earned by family members. The ways in which the family spends its money often make the difference between a successful family and one which founders.

The family with an eight-thousand-dollar annual income lives quite differently from the one with a twenty-thousand-dollar annual income. Family possessions are different, too. Some families depend upon social agencies for their money, such as to families with dependent children and welfare.

For many people, money is the biggest source of trouble in life. Some people will do without true necessities to save money, but others spend their money as soon as they get it, with no thought for future needs. Like time and energy, money is a basic resource that can be used poorly or well. It is valuable because it can buy goods and services.

Individual goals affect people's attitudes toward money. The ease with which money can be obtained is also a factor in each person's attitude. Money may be spent freely when jobs are plentiful. But a business change that makes jobs hard to find may change a family's spending habits. People who think of money in relation to the time and energy they must spend to earn it will probably have a different attitude than people who think of the things that money can buy.

At some time in their lives, most people must consider the basic question about money: "How can I get the money I need?" People work to earn money. Time and energy is spent to furnish goods or services that other people buy. Most families depend on the money they earn from their jobs for their basic income.

Teenagers within the family have to consider special sources of income as they plan to spend their personal money resources. They are given money from the family income and they may earn extra money for special jobs or receive it as a gift. Many teenagers operate on an allowance. Some parents feel that an allowance gives a teenager a chance to learn basic responsibilities that go along with money management. The size of the allowance depends upon the individual situation and the goods and

services it is expected to provide. The number of people in the family and the total family income need to be considered in determining each allowance. The age of family members and individual needs usually affect the amount of the allowance. Family needs and goals will help determine the items each allowance is expected to cover. Money is valuable because of its buying power, and it's function as a credit-establishing commodity, not to mention its use in obtaining security. The reason for learning how to spend it wisely is to make life more satisfying. It is equally as important to know how to spend money as it is to earn it.

In order to be able to spend money wisely the family should devise a spending plan. Some people appear to be afraid of the idea of planning how to spend their money. They may fear that such planning will prevent them from using their money as they wish. Having a spending plan is a way of using available money to reach the family's goals. The spending plan should agree with the actual income. If the plan does not agree an adjustment should be made.

A realistic spending plan for managing the family's income will begin with a list of available resources. The list should include the sources of income, the amount of money from each source, and the times when each amount can be expected.

A spending plan is known as a budget and a budget should give a clear picture of where the family stands financially. The basic budget is a four-point plan for spending.

1. Spending for comfortable daily living. This includes having enough money on hand to pay for basic items that keep the family going from day to day.
2. Spending for major purchases. Major purchases includes household appliances, a house, car, or special vacation.
3. Spending for financial security. Savings accounts, insurance, and investment are a form of spending and one of the most rewarding. The family is buying peace of mind, and the ability to borrow money inexpensively. It is getting extra value for every dollar spent. The family receives interest from the bank, insurance companies and corporations for placing their dollars with them.
4. Splurge spending.

There is an occasional “throw caution to the winds” buy in each of us. With splurge spending the family can dine at a superb restaurant; go to an unplanned baseball game. Keep splurge spending in proportion to the overall budget.

There is a checklist to begin the family’s budget.

1. Open a checking account.
2. Start a savings account.
3. Total net income (income after taxes)
4. List all expenses in a ledger or journal (those that are constant, those that can change).

Before a family can begin to spend its money they need a total figure, which is the net income or the take home pay. That is the actual amount received after deductions have been withheld. Gross income is the income before deductions. After the total, add up expenses. There are three types of expenses that should be listed.

1. Fixed expenses.
2. Flexible expenses.
3. Occasional and emergency expenses.

Fixed expenses are the ones that must be met first and on a regular basis. They are those such as rent, utilities (gas, telephone and electricity), insurance (life, auto, tenant's and homeowner's). These expenses usually remain fairly constant.

Flexible expenses are often cash items and are usually paid for on a daily or weekly basis. Some of these expenses are: food, lunches, savings, laundry and cleaning, carfare and general transportation, and household operating expenses.

Occasional and emergency expenses will occur. They lie between the first two types. How much the family will have to pay is a variable figure. These expenses include: home appliance and auto repairs, uninsured medical and dental bills, large clothing outlays and continuing education.

Practice Exercise

Grant Family Budget

Housing	25%
Food	30%
Clothing	9%
Transportation	15%
Health	5%
Recreation	6%
Savings	8%
Miscellaneous	2%

The Grant family estimates it will earn a total take-home income of \$20,000 for the year.

Using the above budget, find how much money is set aside per year for:

1. Housing
2. Transportation
3. Food
4. What is the amount of expected savings for the year?

Find the average amount of money set aside per month for:

5. Housing
6. Clothing
7. Health

Find the average amount of money set aside per week for:

8. Food
9. Recreation
10. Transportation
11. During the year the total food costs amounted to \$5,809.69. How much over or under budget was this amount?
12. Health costs for the year amounted to \$1,075. Is this over or under the budget? How much?
13. Car payments for the year amounted to \$1,344.96, gasoline and oil costs were \$585.75, repairs and maintenance costs were \$239.50, insurance cost \$360, and public transportation for the year cost \$695. How much over or under budget were the total costs for transportation?

The following year the Grant family's take-home income will increase to \$23,000.

Using the same budget, find how much more money per year will be set aside for:

14. Housing
15. Recreation
16. Clothing

17. How much more money per month will be set aside for transportation than last year?
18. How much more money per week will be set aside for food than last year?

Unit Pricing

Family members are consumers as well as workers. They spend a considerable amount of money to purchase food and other items that they need or desire. To obtain the maximum value for their money it is important to shop wisely. One way to stretch a dollar in the supermarket is to compare *unit prices* of items. A unit price is the amount charged for a single unit of measure such as one ounce or one pound. The unit price of an item is frequently printed on a price label along with the total cost of the item. If two items are of the same quality, it is worthwhile to buy the item that is a cent or two less per unit. Small savings repeated many times add up to big savings. The following formula may be used to compute the unit price of an item:

$$\text{Unit Price} = (\text{Price of Item}) \div (\text{Weight of Item})$$

Example 1: If a ten pound bag of potatoes costs \$1.25, what is the price per pound of the potatoes?

Solution: Price per pound $\$1.25 \div 10 = \$.125$

The unit price is approximately 13 cents per lb.

Example 2: Is it better to buy a 2 pound jar of jelly for \$1.18 or a 3 pound jar of the same jelly for \$1.68?

Solution:

$$\$1.18 \div 2 = \$.59 \text{ per pound}$$

$$\$1.68 \div 3 = \$.56 \text{ per pound}$$

The 3 pound jar for \$1.68 is the better buy.

Discount

A good way to save money is to shop when merchandise is on sale. In January, many stores reduce the prices of toys, furniture and other household items. In late February and March winter clothing usually is sold at reduced prices.

The amount that an item is reduced in price is called a *discount*. The rate of discount is the percent that is taken off the original price of the item. The original price of the item is known as the *list price* or *marked price*, while the amount for which the item sells after the discount has been subtracted from the list price is the *net price* or *sale price*.

To find the net price of an article that is being sold at a discount, first multiply the rate of discount by the marked price to obtain the discount, and then subtract the discount from the marked price to obtain the net price. To find the rate of discount, divide the discount by the list price, and multiply the result by one hundred.

Example 1: Helen bought a dress that usually sells for \$32 at 15% off. What did she pay for the dress?

Solution: $.15 \times \$32 = \4.80 Discount

$\$32.00 - \$4.80 = \$27.20$ Net Price

Helen paid \$27.20 for the dress.

Example 2: A coat marked \$60.00 was on sale for \$48.00.
Find the rate of discount.

Solution: $\$60.00 - \$48.00 = \$12.00$ Discount

$\$12.00 \div 60 = .20$ or 20%

The rate of discount is 20%.

Practice Exercise

Radio Barn Electronics Price List

DVD Player	\$165	Digital Camera	\$380
VCR	\$92	101-disc CD Changer	\$106
13 inch television	\$129	50 inch television	\$1,080
Laptop Computer	\$1,846	Portable CD Player	\$174
2-Way Radio	\$77	Cordless Phone	\$50
Answering Machine	\$103	Wireless Phone	\$81

Using the price list on page 400, calculate each question to the nearest cent.

1. 4% sales tax on one 50 inch television
What is the sales tax?

2. 21% discount on one Wireless Phone
Sales tax is 7%
How much is the after-tax total?

3. You want to buy the Laptop Computer and also the Portable CD Player.
If the sales tax is 6.5%, what is your after-tax total?

4. 27% discount on one VCR
Sales tax is 7%
How much is the after-tax total?

5. You ordered three Digital Cameras on-line. Radio Barn offers a 10% discount off the price of the Digital Camera. You pay no tax, but the total shipping charge for the order is \$7.47.
What is the total to pay?

6. 7.5% sales tax on one DVD Player
What is the sales tax?

7. 60% discount on one 101-disc CD Changer
What is the discount?

8. 9.5% sales tax on one Portable CD Player

What is the sales tax?

9. 20% discount on one 13 inch television

What is the discount?

10. 7% sales tax on one Answering Machine

What is the sales tax?

Credit

A person receives *credit* because they have a reputation for solvency and integrity entitling them to be trusted in buying or borrowing: *You should have no trouble getting the loan if your credit is good.*

Credit can also be an arrangement for deferred payment of a loan or purchase: *a store that offers credit; bought my stereo on credit.*

An *installment plan* is a credit system by which payment for merchandise is made in installments over a fixed period of time.

An *equalized payment plan* is a credit system by which payment for merchandise is made in installments of equal amounts over a fixed period of time.

A *credit card* is a device used to obtain consumer credit at the time of purchasing an article or service. Credit cards may be issued by a business, such as a

department store or an oil company, to make it easier for consumers to buy their products. Alternatively credit cards may be issued by third parties, such as a bank or a financial services company, and used by consumers to purchase goods and services from other companies. There are two types of cards-credit cards and charge cards. Credit cards such as Visa and MasterCard allow the consumer to pay a monthly minimum on their purchases with an interest charge on the unpaid balance. It pays to investigate what the difference is in interest rates on overdue payments when selecting which credit card you would like to use. Charge cards, such as American Express, require the consumer to pay for all purchases at the end of the billing period. Consumers may also use bank cards to obtain short-term personal loans (including "cash advances through [automated teller machines](#)"). Credit card issuers receive revenue from fees paid by stores that accept their cards and by consumers that use the cards, and from interest charged consumers on unpaid balances.

Diners Club became the first credit card company in 1950, when it issued a card allowing members to charge meals at 27 New York City restaurants. In 1958, Bank of America issued the BankAmericard (now Visa), the first bank credit card. In 1965, only 5 million cards were in circulation; by 1996, U.S. consumers had nearly 1.4 billion cards, which they used to charge \$991 billion in goods annually.

The growth of credit cards has had an enormous impact on the economy by changing buying habits and making it much easier for consumers to finance purchases and by lowering savings rates (because consumers do not need to save money for larger purchases). Oil companies, carmakers, and retailers have also used the cards to market their goods and services, using credit as a way of encouraging consumers to buy. Concern has been voiced over widespread distribution of bank credit cards to consumers who may not be able to pay their bills; costly losses and theft of cards; inaccurate (and damaging) credit records; high interest rates on unpaid balances; and excessive encouragement of consumer debt that has cut savings in the United States and Canada.

Technology advances have facilitated the use of credit cards. Merchants are now connected to banks by [modem](#), so purchases are approved rapidly; on-line shopping on the [Internet](#) is possible with credit card payment. Credit card companies are also experimenting with [smart cards](#) that would act like a small computer, storing account and other information necessary for its use.

A *debit card* is a card that allows the cost of goods or services that are purchased to be deducted directly from the purchaser's checking account. They can also be used at [automated teller machines](#) for withdrawing cash from the user's checking account.

Increasingly common in the 1990s as an alternative to [credit cards](#), debit cards have been promoted as safer than cash and more convenient than personal checks. By 1998 more than 73 million debit cards had been issued, with a sales volume of \$134.7 million attributed to their use. They are typically issued by large credit-card companies through their participating banks. Debit cards offer the holder more limited legal protections than credit cards. Similar cards have also been used to distribute welfare benefits to recipients in some locales.

A *bank loan* is a sum of money lent at interest by a financial institution. It pays to shop around to find the institution that offers the best interest charges on their loans. The lower the interest rate is, the more likely consumers will take out loans from that bank.

Banking

Banks differ in the services they provide and in how they are owned. Many financial experts use the word bank to refer only to a commercial bank. These experts believe that savings banks, savings and loan associations, and credit unions are not true banks because they do not perform all the functions of commercial banks. Savings banks, savings and loan associations, and credit unions are often called thrift institutions, or simply thrifts, because their chief purpose is to encourage saving.

The Canadian banking system consists of 10 commercial banks, such as the Bank of Montreal and the Toronto-Dominion Bank. In Canada, commercial banks are called **chartered banks**. These banks conduct most of Canada's personal and business banking.

Chartered banks cannot offer trust services, which include the establishment and management of trust funds. A trust fund consists of money, securities, or other property managed by one person or group for the benefit of another. Trust services are provided by specialized trust companies that may be regulated by the national or provincial government.

Banks have traditionally been distinguished according to their primary functions. Commercial banks, which

include national- and provincial-chartered banks, trust companies, stock savings banks, and industrial banks, have traditionally rendered a wide range of services in addition to their primary functions of making loans and investments and handling demand as well as savings and other time deposits. Mutual [savings banks](#), until recently, accepted only savings and other time deposits, and offered limited types of loans and services. The fact that commercial banks were able to expand or contract their loans and investments in accordance with changes in reserves and reserve requirements further differentiated them from mutual savings banks, where the volume of loans and investments was governed by changes in customers' deposits.

Types of financial institutions that have not traditionally been subject to the supervision of provincial or federal banking authorities but that perform one or more of the traditional banking functions are savings and loan associations, mortgage companies, finance companies, insurance companies, credit agencies owned in whole or in part by the federal government, credit unions, brokers and dealers in securities, and investment bankers.

Savings and loan associations, which are provincial institutions, provide home-building loans to their members out of funds obtained from savings deposits and from the sale of shares to members. Finance companies make small loans with funds obtained from invested capital, surplus, and borrowings. [Credit](#)

unions, which are institutions owned cooperatively by groups of persons having a common business, fraternal, or other interest, and are supervised by the individual provinces, make small loans to their members out of funds derived from the sale of shares to members. The primary functions of investment bankers are to act as advisers to governments and corporations seeking to raise funds, and to act as intermediaries between these issuers of securities, on the one hand, and institutional and individual investors, on the other.

Bank Services

Money in a bank is safe. Banks keep cash in fire-resistant vaults and are insured against the loss of money in a robbery. In Canada and many other countries, the government also insures bank deposits. This insurance protects people from losing their money if the bank is unable to repay the funds.

In addition, banks rent safe-deposit boxes, providing people with a secure place for important papers and other valuable items.

Banks receive money from people who do not need it at the moment and lend it to those who do. For example, a couple may want to buy a \$75,000 house but have only \$15,000 in savings. If one or both of them have a good job and seem likely to repay the loan, a bank may lend them the \$60,000

they need. To make the loan, the bank uses money that many other people have deposited.

Many banks have modernized their check-handling facilities with computers and other electronic equipment. However, an even more advanced system may completely eliminate the use of checks. This system, called [electronic funds transfers](#) (EFT), automatically transfers money from one account to another. EFT includes three types of facilities: (1) automated teller machines, (2) automated clearinghouses, and (3) point-of-sale terminals.

A *bank machine* or *ATM (Automated Teller Machine)* is a device used by bank customers to process account transactions. Typically, a user inserts into the ATM a special plastic card that is encoded with information on a magnetic strip. The strip contains an identification code that is transmitted to the bank's central computer by [modem](#). To prevent unauthorized transactions, a personal identification number (PIN) must also be entered by the user using a keypad. The computer then permits the ATM to complete the transaction; most machines can dispense cash, accept deposits, transfer funds, and provide information on account balances. Banks have formed cooperative, nationwide networks so that a customer of one bank can use an ATM of another for cash access. Some ATMs will also accept [credit cards](#) for cash advances. The first ATM was installed in 1969 by Chemical Bank at its branch in Rockville Centre, N.Y. A customer using a coded card was dispensed a package containing a set sum of

money.

Automated clearinghouses are computer centers for the automatic deposit of regular income and the automatic payment of many bills. An employer, instead of issuing paychecks, directs the computer to credit an employee's account with the person's pay. This is called a [direct deposit](#). People can also have money for insurance premiums, mortgage installments, and other regular payments transferred from their bank accounts to the billers' accounts. On-line banking through the [Internet](#) and banking through automated phone systems now allow for electronic payment of bills, money transfers, and loan applications without entering a bank branch.

Point-of-sale terminals are computer terminals that operate in retail stores. To pay for a purchase, a customer gives the clerk an identification card, a [debit card](#), which the clerk puts into the terminal. Within seconds, the system transfers the amount of the purchase from the customer's bank account to the store's account.

Banks also sell [traveler's checks](#) and [money orders](#). A traveler's check is an internationally redeemable order for the payment of a specified amount of money purchased in various denominations from a bank or traveler's aid company and payable only upon the purchaser's endorsement against the original signature on the order. A money order is an order for the payment of a specified amount of money, usually issued and payable at a bank or post office.

Many banks now have [travel centers](#), where not only can you purchase traveler's checks, but you can also sign up for various air mile and vacation package plans. You may even purchase travel medical insurance that takes the worry out of travel by taking care of your emergency medical expenses, and providing access to a wide range of medical and travel services anywhere in the world.

A [line of credit](#) or [credit line](#) is an arrangement in which a bank or vendor extends a specified amount of credit to a specified borrower backed only by the integrity of the borrower for a specified time period. The bank sets aside a predetermined amount of money that is based on your personal financial situation. Whenever you need extra funds, you simply withdraw any amount up to your approved credit limit.

Many banks offer investment and business counseling to their customers. Investment counseling usually involves advice on the purchase of stocks or bonds in the hope of increasing a person's income. An Investment Specialist works with you and your branch Adviser to develop a personalized in-depth financial plan designed to help you meet your financial goals. Once you approve the plan, it is put into action; your portfolio is structured to include the investment products appropriate for you.

Business counseling usually deals with the opening of a new business or the extension of an old one.

People who have money in a bank checking account can pay bills by simply writing a check and mailing it. A check

is a safe method of payment, and the canceled check provides written proof that payment was made.

Opening a Checking Account

Your budget will work best if your money is where you need it when you need it. Checking accounts have several advantages. The family will not have to keep a lot of cash in the home. Cash in the hand has a habit of dribbling away, and there is always the danger of theft. Checks are a convenient way of paying bills and they are a written way of how and where the money was spent. They also serve as receipts of payment.



Paying bills and making purchases by check instead of cash has its advantages: you don't have to carry around lots of money; you can send checks by mail with no danger of loss if the check fails to reach its destination; your cancelled check is an automatic record of payment in case there is a misunderstanding; and cancelled checks are valuable records of income tax deduction claims. All in all, checks are safer and more convenient than cash in many cases.

When you are writing a check, you must include the date, the name of the business, organization, or individual who

will receive the money, the amount of money in words and numbers, and your signature. The check cannot be cashed without your signature.

There are two kinds of checking accounts: special and regular. The best one for you will depend on how many checks you write in an average month and the amount of money you keep on deposit in your account.

When you have a special checking account, you pay a fee for each check you write. Usually this is 15¢ per check. You may also be charged a monthly service fee of about \$3.00.

When you have a regular checking account, no fees are charged as long as the balance on deposit earns enough income for the bank to cover the service costs. Some banks may charge a monthly maintenance fee or add a service charge for transactions (deposits and withdrawals) beyond a specified number. For example, the bank may allow you to write ten checks per month at no charge; for all checks written in excess of ten there will be a small fee.

Which kind of account is best depends on you. If you have to write only a few checks per month, a special checking account is usually cheaper. However, if you write ten or more checks a month regularly, a regular checking account may save you money. Since charges vary from bank to bank, and from community to community, you should investigate several banks to see which offers the best arrangements.

Whether you have a regular account or a special, here are some suggestions for using this service:.

1. Be sure you do not write checks totaling more money than you have in the account. This sounds elementary, but people do it frequently, simply because they forget the next rule.
2. Always enter the amount of the check and to whom it is being paid on your check stub before writing the check itself, and keep an up-to-date calculation of the balance left in the account. This means that your check stubs will record each deposit you make, and the amount of each check will be subtracted from the balance on hand.
3. Avoid writing checks to “cash” or “bearer”. There are two good reasons for this rule: (a) you have no record as to what you used the money for when you write checks to “cash” and (b) anyone can cash such a check, so if you lose it, someone can pick it up and cash it without your knowing. So always make your check payable to a specific person or to a specific organization.
4. Learn to use your checkbook as an “instant” record of how much you are spending, for what, and how much you have left to spend before the next paycheck comes along. After you acquire some experience in spending and in using your checking account, you can do as many people do: use your checkbook as a running budget to manage your spending.

3) Transaction details

Date	Description	Amount Withdrawn	Amount Credited	Balance
Jul. 01, 2000	Opening Balance			\$709.46
Jul. 05, 2000	CSB60 Purchase		\$50.00	\$759.46
Jul. 19, 2000	CSB60 Purchase		\$50.00	\$809.46
Aug. 16, 2000	CSB60 Purchase		\$50.00	\$859.46
Aug. 30, 2000	CSB60 Purchase		\$50.00	\$909.46
Sep. 13, 2000	CSB60 Purchase		\$50.00	\$959.46
Sep. 27, 2000	CSB60 Purchase		\$50.00	\$1,009.46
Oct. 11, 2000	CSB60 Purchase		\$50.00	\$1,059.46
Oct. 25, 2000	CSB60 Purchase		\$50.00	\$1,109.46
Nov. 08, 2000	CSB66 Purchase		\$50.00	\$1,159.46
Nov. 22, 2000	CSB66 Purchase		\$50.00	\$1,209.46
Dec. 06, 2000	CSB66 Purchase		\$50.00	\$1,259.46
Dec. 20, 2000	CSB66 Purchase		\$50.00	\$1,309.46
Dec. 31, 2000	Interest accumulated in plan for period		\$24.32	\$1,333.78
Dec. 31, 2000	Closing Balance			\$1,333.78

4) Other information

Your checking account will serve as your personal accounting system. Every month or two you will receive a statement from the bank itemizing your transactions and showing the balance left in your account. With the statement will come all your cancelled checks that have cleared the bank by the time your statement was prepared. When you receive your statement compare your checkbook calculations with the banks calculations.

Balancing Your Books

For your books to balance:

Daily cash withdrawals and deposits in your budget record should agree with bank records. And the amount of money your records say you have in the bank, after all debits and credits to your bank account are recorded, should be the same as what you actually have in the bank (with bank adjustments). Your bank balance as shown in your records

can be verified each month when you receive your bank statement and cancelled checks.

There is nothing magical or difficult about balancing your books. In fact, there's nothing else your books can do but balance if you write down every transaction that you make.

Here are a few final reminders. When keeping your budget records in a journal or business ledger, make sure you do the following:

- Enter and explain all checks written
- Write notes to yourself when necessary

Bank Reconciliation

To prevent you from writing NSF (not sufficient funds) checks, and to enable you to identify excess funds that you can use to reduce your expenses, it is important that you are at all times "reconciled" with the bank. To be reconciled with your bank simply means that you know the "true" amount of your bank balance at all times, including between bank statements. If your budget record is up-to-date, it will give you an accurate daily record of your reconciled bank account.

Practice Exercise

On August 30, you receive your bank statement. It shows a beginning balance of \$1,593.07. It lists checks numbered 296, 297, and 298 and a service charge of \$.30.

On August 5, you sent a check numbered 296 to Andrew Jaffe for \$508.40 for purchases of appliances.

On August 12, you sent a check numbered 297 to the Stephen Furniture Co. in the amount of \$241.95 for the furniture purchased.

On August 22, you sent a check numbered 298 to the Scott Department Store for \$485.69 for merchandise purchased.

Your statement also lists deposits totaling \$1,134.09 and shows an ending balance of \$1,490.82.

Is the statement correct?

Opening a Savings Account

A savings account is most helpful. The family collects interest on the money in their savings account.

Your success as a saver will indicate your success as a money manager. A savings account furnishes a way to separate money from the general flow of your day-to-day spending so that it can accumulate for emergencies and for your long-range plans, while at the same time earning for you by drawing interest.

Saving money is simple in theory, but seldom simple in practice. You have to make up your mind that you are going to be a saver and stick to it. Here are some suggestions that may help:

1. Set specific saving goals: a new car, a stereo, college tuition, a vacation trip—whatever you would like to have in the future. You will find it is easier to save regularly when you know exactly what you are saving for.
2. Pay yourself first. With each paycheck, set aside a certain amount in your savings account. Do it regularly; put aside as much as you can, but don't overdo so that saving becomes a burden. A little saved regularly is better in the long run than larger sums saved sporadically.
3. Select a saving institution that pays a favorable rate of interest. In this way, your money will be working for you as it earns interest. Your account

will grow faster, and you will achieve your “wants” more quickly.

Over a period of time, the interest rate can result in a substantial addition to your account. The number of times that the savings institution computes the interest during a year can also make a difference. Each time the interest is added to your account, the interest then earns more interest. Bankers call this “compound interest”.

Lets say that you save \$5.00 regularly each week for five years. At the end of five years you would have deposited \$1,300, but your account will total \$1,438.94 if your bank paid 4% interest compound quarterly. At 5% interest, your account would be worth \$1,474.49.

For all-purpose use, a regular savings account is the most suitable. Some banks also offer special savings accounts that you may find convenient for particular purposes.

A [true savings account](#) is one on which interest is calculated daily and paid monthly. The higher your balance, the higher your rate of interest.



When you open an account, you will be given a [passbook](#). A passbook is a book issued by a bank or savings institution to record withdrawals, deposits, and interest earned in a savings account.

[Term deposits](#), such as GICs (Guaranteed Investment Certificates), allow you to deposit money with a bank for a specific period of time, during which time you earn a guaranteed rate of interest. The longer you keep the money on deposit, the higher the rate of interest you generally earn. At the end of the term, the bank will return the full amount of your deposit – guaranteed – plus interest.

Bank Forms

Personal Deposit Form

Personal deposit forms are used by customers who want to “deposit,” or put cash or cheques into an account. The forms vary somewhat from bank to bank but require basically the same information.

The account information part of the form requires the following information:

- a. The date that the deposit is being made.
- b. Your transit and account number. The transit number identifies the bank where the transaction is taking place

and the account number indicates the savings or chequing account that you would like to access.

- c. The name of the account holder.
- d. The initials of the person who is making the deposit (the “depositor”).
- e. The initials of the bank employee who is responsible for the transaction.

In the Canadian and United States Cheques column, the you can list and add up any Canadian or U.S. cheques that you are depositing.

Note: When depositing U.S. cash or cheques in a Canadian bank, this form can only be used if you are depositing directly to a U.S. account.

To complete the Cash section:

- a. List the number of bills according to their dollar value, or denominations (fives, tens, twenties, etc.).
- b. Add together all of the coins and write the total in the “Coins/Coupons” space.
- c. Add together all of the cash and coins, and write the total amount in the “Total Cash & Coupons” space.
- d. Add together the amounts of the total checks, and write the total amount in the “Total Checks” space.

- e. Add together the total checks and total cash to figure out the Sub-Total amount.
- f. Write the amount of cash that you want to receive, in the “Less Cash Received” space.
- g. To figure out your Net Deposit, subtract the amount of cash you want from the Sub-Total.

If you are receiving cash from your deposit, you must sign the deposit form in front of the bank employee in order to prevent impersonation and other types of fraud.

The Record of Deposit section of the form is used as your receipt. The bank employee must mark your account number and the type of account on the receipt and stamp and initial it before giving it to you.

Withdrawal Forms

Withdrawal forms are used when customers want to “withdraw,” or take out money, from their personal account. The forms vary somewhat from bank to bank but require basically the same information.

The current date is written in the space provided.

The withdrawal amount is written in numbers.

You must put the bank transit number and your account number in the appropriate spaces.

You must sign the slip in front of the bank employee to prevent impersonation and other types of fraud.

Bank Charges

Since the 1980s, financial institutions have been relying much more on service charges for their domestic banking revenues.

The most common charges are for account deposits, withdrawals, and maintenance. Other fees can include: financing applications and credit reviews; credit cards, debit cards, merchant charges, and rentals; business records, reporting, and statement charges; guarantees and letters of credit; foreign currency and trade financing charges; and payroll, pre-authorization, and government remittance charges.

Unlike most goods or tangible services, where true costs can reasonably be identified, the costs of financial transaction services often defy accurate measurement. For example, the act of transferring a sum of money electronically from one account to another has virtually no increased cost to the financial institution. All the costs are embedded in the fixed costs of the computer systems and networks used to execute and store the transaction. Placing a charge on the transaction, therefore, involves judgment in allocating these fixed costs according to time, effort or dollar amount. As financial services move farther into the

electronic world and as institutions continue to place increasing reliance on service charge sources of revenue, it is likely that the disconnect between service charge and service value will only get worse.

You must consider all these possibilities when you are attempting to choose a bank and an account that will suit your needs.

Calculating Interest

Interest is the amount that someone pays to use someone else's money. If you invest money in a savings account, the bank pays interest to you. If you borrow money from the bank, you pay interest on that money to the bank. The amount of money borrowed or invested is called the principal. The interest rate is the percent charged or paid during a given period of time.

Simple Interest

There are two different ways of calculating interest: simple and compound. When you pay simple interest, you pay interest only on the principal, not on interest that has already been paid.

EXAMPLE: Suppose you borrow \$2000 at a simple interest rate of 12% per year. You agree to repay the

loan at the end of 2 years. How much interest will you pay? How much will you pay to the bank in all?

The interest depends on how much you borrow, the interest rate at which you borrow and how long you borrow. It makes sense, therefore, that the formula that tells you how to compute interest involves all three amounts.

To find the amount of interest that you will pay, you can use this formula:

$$\text{Interest (I)} = \text{Principal (P)} \times \text{Annual Rate of Interest (r)} \times \text{Time in Years (t)}$$

This is how the formula is used:

$$\begin{aligned} I &= prt \\ &= (2000)(0.12)(2) \text{ [Remember that } 12\% = 0.12\text{]} \\ &= 480 \end{aligned}$$

You will pay \$480 in interest. Since the principal is \$2000, you will pay \$2000 + \$480, or \$2480, to the bank. This is sometimes referred to as the total amount.

Watch Out!!! We know that there are 365 days in a year but with interest you calculate with 360 days (a business year).

$$30 \text{ days} = \frac{30}{360} = \frac{1}{12}$$

$$120 \text{ days} = \frac{120}{360} = \frac{1}{3}$$

$$1 \text{ year} = 1 \quad 1 \frac{1}{2} \text{ years} = 1.5 \quad 2 \frac{3}{4} \text{ years} = 2.75$$

Example What would the interest be on a 90 day loan of \$500.00, if the rate was 15%?

$$15\% = .15$$

$$\frac{90}{360} = \frac{1}{4}$$

$$I = PRT$$

$$I = 500 \times .15 \times \frac{1}{4}$$

$$I = \$18.75$$

Calculating the Rate of Interest

Example

Calculate the interest rate required for an investment of \$870 to earn \$208.80 in simple interest over 3 years.

Solution:

$$I = \$208.80$$

$$P = \$870$$

$$t = \text{Time} = 3 \text{ years}$$

$$r = ? (\% \text{ p.a.})$$

$$\text{Now, } I = Prt$$

$$208.80 = 870 \times r \times 3$$

$$208.80 = 2610r \quad (\text{Divide both sides by 2610})$$

$$\therefore \frac{2610r}{2610} = \frac{208.80}{2610}$$

$$r = \frac{208.80}{2610}$$

$$r = 0.08$$

$$= 8\%$$

So, the interest rate is 8% per annum.

Calculating the Principal

Example

Calculate the amount of money that would earn \$750 simple interest if invested at 4.5% p. a. for 5 years and 9 months.

Solution:

$$I = \$750$$

$$P = ?$$

$$r = \text{Rate of interest} = 4\frac{1}{2}\% \text{ p.a.} = 4.5\% \text{ p.a.}$$

$$t = \text{Time} = 5 \text{ years and } 9 \text{ months} = 5\frac{3}{4} \text{ years} = 5.75 \text{ years}$$

$$\text{Now, } I = Prt$$

$$750 = P \times 4.5\% \times 5.75$$

$$750 = P \times 0.045 \times 5.75$$

$$750 = 0.25875P$$

{Divide both sides by 0.25875}

$$\frac{750}{0.25875} = \frac{0.25875P}{0.25875}$$

$$2898.55 = P$$

So, the amount of money is \$2898.55.

Calculating the Time

Example

Calculate the time required for \$8500 to earn \$2125 in interest at a rate of $6\frac{1}{4}\%$ p. a. simple.

Solution:

$$I = \$2125$$

$$P = \$8500$$

$$r = 6\frac{1}{4}\% \text{ p.a.} = 6.25\% \text{ p.a.}$$

$$t = ?$$

$$\text{Now, } I = Prt$$

$$2125 = 8500 \times 6.25\% \times t$$

$$= 8500 \times 0.0625 \times t$$

$$= 531.25t$$

$$\therefore 531.25t = 2125 \quad (\text{Divide both sides by } 531.25)$$

$$\underline{531.25t} = \underline{2125}$$

$$531.25 \quad 531.25$$

$$t = 4$$

So, the time required is 4 years.

To find the rate, principal, or time, you may also rewrite the interest formula as follows:

$$\begin{aligned} \text{Rate} &= \frac{\text{interest}}{\text{principal} \times \text{time}} \\ \text{Principal} &= \frac{\text{interest}}{\text{rate} \times \text{time}} \\ \text{Time} &= \frac{\text{interest}}{\text{principal} \times \text{rate}} \end{aligned}$$

Practice Exercise

Complete the table. Round to the nearest cent.
The first one is done for you.

	<i>principal</i>	<i>rate</i>	<i>time</i>	<i>interest</i>
1.	\$200	5%	1 year	\$10
2.	\$500	8%	1 year	_____
3.	\$100	4%	1 year	_____
4.	\$430	9%	1 year	_____
5.	\$310	8%	1 year	_____
6.	\$600	7%	1 year	_____
7.	\$420	9%	1 year	_____
8.	\$880	4%	1 year	_____
9.	\$810	6%	1 year	_____
10.	\$820	5%	1 year	_____

11. \$860	9%	1 year	_____
12. \$315	4%	1 year	_____
13. \$340	6%	1 year	_____
14. \$4,087	8%	1 year	_____
15. \$2,051	5%	1 year	_____

Complete the table. Round to the nearest cent.
The first one is done for you.

Calculate the interest and total payment assuming this is a loan.

	<i>principal</i>	<i>rate</i>	<i>time</i>	<i>interest</i>	<i>total payments</i>
1.	\$300	12%	$2\frac{3}{4}$ years	\$99	\$399
2.	\$500	7%	$3\frac{1}{2}$ years	_____	_____
3.	\$900	10%	1 year	_____	_____
4.	\$380	4%	1 year	_____	_____
5.	\$360	8%	$5\frac{1}{4}$ years	_____	_____
6.	\$540	5%	2 years	_____	_____

7.	\$390	11%	$1\frac{1}{2}$ years	_____	_____
8.	\$900	9%	$3\frac{3}{4}$ years	_____	_____
9.	\$740	10.8%	$4\frac{1}{4}$ years	_____	_____
10.	\$4,270	16.3%	2 years	_____	_____
11.	\$5,840	7.7%	3 years	_____	_____
12.	\$1,125	15.4%	4 years	_____	_____
13.	\$1,725	10.47%	5 years	_____	_____
14.	\$91,220	14.21%	4 years	_____	_____
15.	\$46,045	11.71%	$4\frac{1}{4}$ years	_____	_____

Complete the table. Round to the nearest cent.
The first one is done for you.

Calculate the interest and total payment assuming this is a loan.

	<i>principal</i>	<i>rate</i>	<i>time</i>	<i>interest</i>	<i>total payments</i>
1.	\$600	7%	240 days	\$28	\$628

2.	\$300	11%	180 days	_____	_____
3.	\$400	5%	30 days	_____	_____
4.	\$700	6%	90 days	_____	_____
5.	\$440	10%	60 days	_____	_____
6.	\$380	12%	210 days	_____	_____
7.	\$390	4%	150 days	_____	_____
8.	\$760	9%	300 days	_____	_____
9.	\$6,230	15.7%	90 days	_____	_____
10.	\$5,670	14.5%	120 days	_____	_____
11.	\$1,360	7.7%	60 days	_____	_____
12.	\$900	6.9%	210 days	_____	_____
13.	\$2,350	9.75%	300 days	_____	_____
14.	\$26,968	11.34%	180 days	_____	_____
15.	\$2,354	14.19%	270 days	_____	_____

Complete the following.

	Principal	rate	time	interest
1)	\$800.00	11%	5 years	
2)	\$1300.00		110 days	\$12.00
3)	\$2150.00	12%		\$832.50
4)	\$680.00		2 years	\$129.60
5)	\$225.00	2%	2 years	
6)	\$1000.00	14%		\$22.00

Compound Interest

Unlike simple interest, compound interest is paid on the principal and on interest that has already been paid. You can calculate compound interest by making a table.

EXAMPLE: Suppose you put \$500 in a bank account that pays an 8% annual interest rate and is compounded every month. After each 1-month period, the interest is added to the principal and you earn interest on the new total in your account. How much money will you have in the account at the end of 10 months?

Three months is equal to three 1-month periods.
The rate (r) is 8%, or 0.08 per year.
Since the time period is 1 month, which is $1/12$ year, $t = 0.083$ ($1 \div 12$)

PERIOD	PRINCIPAL	INTEREST	NEW TOTAL
1 st month	500.00	$(500.00)(0.08)(0.083)$ $= 3.32$	503.32
2 nd month	503.32	$(503.32)(0.08)(0.083)$ $= 3.34$	506.66
3 rd month	506.66	$(506.66)(0.08)(0.083)$ $= 3.36$	510.02
4 th month	510.02	$(510.02)(0.08)(0.083)$ $= 3.39$	513.41
5 th month	513.41	$(513.41)(0.08)(0.083)$	516.82

		= 3.41	
6 th month	516.82	(516.82)(0.08)(0.083) = 3.43	520.25
7 th month	520.25	(520.25)(0.08)(0.083) = 3.45	523.70
8 th month	523.70	(523.70)(0.08)(0.083) = 3.48	527.18
9 th month	527.18	(527.18)(0.08)(0.083) = 3.50	530.68
10 th month	530.68	(530.68)(0.08)(0.083) = 3.52	534.20

So, at the end of 10 months, you will have \$534.20 in the account.

You might compare this to simple interest. In this case, the interest would be found by using the formula:

$$I = prt$$

$$= 500(0.08)(5/6) = \$33.33$$

The total amount is \$500 + \$33.33, or only \$533.33.

Another way to calculate the interest using the formula above would have been to use the monthly interest for r and the number of months for t .

$$500(0.08 \div 12)(10) = \$33.33$$

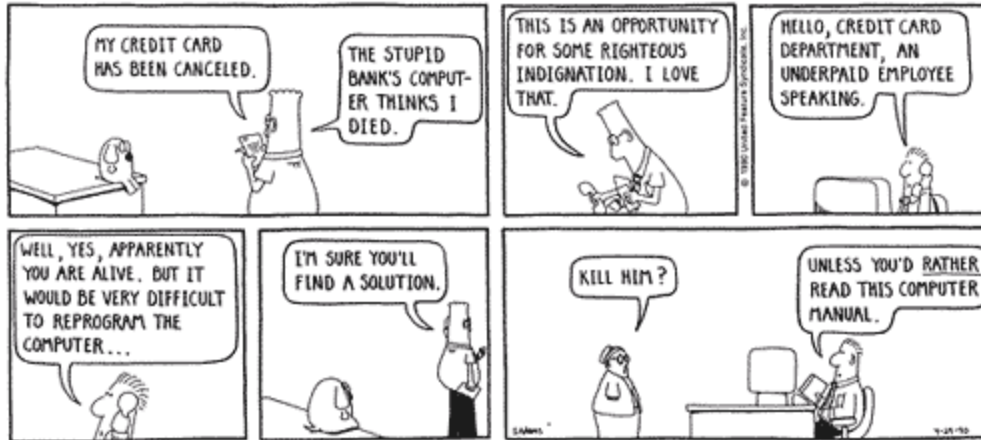
Practice Exercise

Find the amount and the interest earned when the interest is compounded annually on:

1. \$100 for 6 yr at 14%
2. \$900 for 11 yr at 6%
3. \$1,400 for 3 yr at 16%
4. \$10,000 for 15 yr at 5%
5. \$8,500 for 7 yr at 8%
6. \$2,750 for 20 yr at 10%

Credit Cards

When you use credit cards, you may pay compound interest without realizing it. So, your annual effective interest --- the interest rate you actually pay for the year --- may be greater than the simple annual percentage rate listed on the card. How can that be? The answer comes from how your finance charges are computed. If you don't pay off your balance in full each month, you pay interest both on the unpaid balance and on the finance charges that are applied each day. When you pay interest on interest, interest is compounded. So, although the daily rate listed on the bill is accurate, the interest you pay over a year ends up being greater than the annual rate listed on the bill.



Mortgage

A *mortgage* is a temporary, conditional pledge of property to a creditor as security for performance of an obligation or repayment of a debt.

A *fixed-term mortgage* is a mortgage in which the interest rate does not change during the entire term of the loan.

A *flexible mortgage* is a mortgage in which the interest rate may change at some point during the term of the loan.

Amortization is the gradual elimination of a liability, such as a mortgage, in regular payments over a specified period of time. Such payments must be sufficient to cover both principal and interest.

Payments can be figured out by reading an **amortization table**.

AMORTIZATION TABLE

MONTHLY PAYMENT PER \$1000 OF LOAN PRINCIPAL. Note: For estimate purposes only.

Annual Percentage Rate	TERM OF LOAN IN YEARS							
	1	2	3	4	5	10	15	30
5.00%	\$85.61	\$43.88	\$29.88	\$23.04	\$18.88	\$10.61	\$7.91	\$5.68
5.50%	\$85.84	\$44.10	\$30.20	\$23.26	\$19.11	\$10.86	\$8.10	\$5.69
6.00%	\$86.07	\$44.33	\$30.43	\$23.49	\$19.34	\$11.11	\$8.45	\$6.00
6.50%	\$86.30	\$44.55	\$30.65	\$23.72	\$19.57	\$11.36	\$8.72	\$6.33
7.00%	\$86.53	\$44.77	\$30.68	\$23.95	\$19.80	\$11.61	\$8.99	\$6.65
7.50%	\$86.76	\$45.00	\$31.11	\$24.18	\$20.04	\$11.87	\$9.27	\$6.99
8.00%	\$86.99	\$45.23	\$31.34	\$24.41	\$20.28	\$12.13	\$9.56	\$7.34
8.50%	\$87.22	\$45.46	\$31.57	\$24.65	\$20.52	\$12.40	\$9.85	\$7.69
9.00%	\$87.45	\$45.68	\$31.80	\$24.89	\$20.76	\$12.67	\$10.14	\$8.05
9.50%	\$87.68	\$45.91	\$32.03	\$25.12	\$21.00	\$12.94	\$10.44	\$8.41
10.00%	\$87.92	\$46.14	\$32.27	\$25.36	\$21.25	\$13.22	\$10.75	\$8.78
10.50%	\$88.15	\$46.38	\$32.50	\$25.60	\$21.49	\$13.49	\$11.06	\$9.15
11.00%	\$88.38	\$46.61	\$32.74	\$25.85	\$21.74	\$13.78	\$11.37	\$9.52
11.50%	\$88.62	\$46.84	\$32.98	\$26.09	\$21.99	\$14.06	\$11.68	\$9.20
12.00%	\$88.85	\$47.07	\$33.21	\$26.33	\$22.24	\$14.35	\$12.00	\$10.29
12.50%	\$89.08	\$47.31	\$33.45	\$26.58	\$22.50	\$14.64	\$12.33	\$10.67

To read the table on page 438, imagine that you have taken out a loan of \$1000. To repay that loan in 1 year, at a rate of 5%, it will cost you approximately \$85.61 a month.

If you multiply \$85.61 by 12 (the number of months in a year), your result is \$1027.32. Therefore, you are paying the bank back an additional \$27.32 cents in interest.

If we figure this out using the simple interest formula ($i = prt$), it works out like this:

$$i = prt$$

$$i = \$1000 \times 5\% \times 1$$

$$i = \$1000 \times .05 \times 1$$

$$i = \$50$$

$$\text{total amount} = \text{principal} + \text{interest}$$

$$\text{total amount} = \$1000 + \$50$$

$$\text{total amount} = \$1050$$

$$\text{monthly payment} = \$1050 \div 12$$

$$\text{monthly payment} = \$87.50$$

Note that the calculations in the table are estimates.

Practice Exercise

The following partial schedule indicates the monthly payments necessary to amortize a loan that was made at 13% annual interest.

Term	\$5,000	\$10,000	\$15,000	\$20,000	\$25,000	\$30,000	\$35,000	\$40,000	\$45,000	\$50,000
15 yr	63.27	126.53	189.79	253.05	316.32	379.58	442.84	506.10	569.36	632.63
20 yr	58.58	117.16	175.74	234.32	292.90	351.48	410.06	468.64	527.21	585.79
25 yr	45.12	112.79	169.18	225.57	281.96	338.36	394.75	451.14	507.53	563.92

30 yr	44.25	110.62	165.93	221.24	276.55	331.86	387.17	442.48	497.79	553.10.
35 yr	43.81	109.52	164.28	219.04	273.80	328.56	383.32	438.08	492.84	547.60
40 yr	43.59	108.96	163.43	217.91	272.38	326.86	381.33	435.81	490.29	544.76

Use the above table of monthly payments in the following problems:

If a person borrowed \$40,000 at 13% annual interest, what is the monthly payment when the loan is to be amortized in:

1. 25 years?
2. 40 years?
3. 15 years?
4. 30 years?
5. 20 years?
6. 35 years?

Find the total interest that was paid on each of the following loans at 13% annual interest when the loans were amortized in the specified terms:

- | | Amount | Term |
|-----|----------|----------|
| 7. | \$10,000 | 15 years |
| 8. | \$45,000 | 20 years |
| 9. | \$30,000 | 40 years |
| 10. | \$20,000 | 25 years |
| 11. | \$50,000 | 35 years |
| 12. | \$35,000 | 30 years |
13. Find the total payment over the full term required on a loan of \$45,000 at 13% annual interest when it is amortized in 30 years.

14. Find the total payment over the full term required on a loan of \$45,000 at 13% annual interest when it is amortized in 40 years.
15. For the terms mentioned in questions 13 and 14, which term has the least amount of interest? How much less?
16. Mrs. Rice purchased a house for \$42,500. She paid \$7,500 in cash and obtained a mortgage loan at 13% annual interest for the balance. What is the monthly payment due if it is to be amortized in 35 years?

Most people get paid on a weekly or biweekly basis. Nowadays, very few individuals get paid monthly. Therefore, it makes good sense to make your mortgage payments as often as you are paid. Making weekly or biweekly payments also has a dramatic effect on how fast you pay off your mortgage. Let's say you took out a \$100,000 mortgage today, at 8.50% amortized over 25 years. Your monthly payment will be \$795.36. In 25 years, you would have paid \$238,609.06 for the mortgage.

Now let's take the same monthly mortgage payment, divide by two, for a biweekly payment of \$397.68. By paying biweekly you will pay off your mortgage in 19 years and 9 months with an interest savings of \$34,222.80 over the life of the mortgage. A bonus, simply because you were smart and coordinated your

mortgage payment day with your payday! A word of caution! Not all weekly or biweekly payments will give you these results. Make sure that your mortgage company is calculating your weekly or biweekly payments properly so you can start saving now.

Early Renewal

Depending on the financial institution, some allow their mortgage holders to renew before the term is expired by paying a small administration fee. This would be a good option to examine if current interest rates are considerably lower than what your mortgage financing is and if you intend to average down to a lower mortgage payment. A simple example of how this works is as follows.

- You are 5 years into a 10 year term.
- Your interest rate is 10%
- The current 10 year rate (it does not have to be the same term) is 5%
- By renewing early at 5% you extend your mortgage term to 10 years, but your blended rate is 7.5% over the entire 10 year term

Refinancing an existing mortgage occurs when the homeowner wants a lower interest rate than they are currently receiving on their funding. The result is a

lower mortgage payment or an acceleration of the payment process. It would seem obvious that everyone would want to trade in their higher rate of interest for one that is lower, so why is this even a question? Well, in short, there are penalty costs to closing out an existing mortgage obligation, as well as incidentals such as legal, closing and even appraisal costs. The mortgage industry rule of thumb is that refinancing becomes worthwhile when your current interest rate is two percentage points or greater than the current market rate. You have to factor in all the costs incurred in refinancing, as well as how long you are going to remain in the current home, as it takes time to recoup those initial losses and then realize savings.



Problem Solving in Personal Finance

Wacky Willy's Electronics Price List

DVD Player	\$139	Digital Camera	\$325
VCR	\$96	101-disc CD Changer	\$164
13 inch television	\$151	50 inch television	\$1,165
Laptop Computer	\$2,007	Portable CD Player	\$138
2-Way Radio	\$48	Cordless Phone	\$54
Answering Machine	\$83	Wireless Phone	\$85

Using the price list, calculate each question to the nearest cent.

1. 5.4% sales tax on one 2-Way Radio
What is the sales tax?

2. 20% discount on one 13 inch television
Sales tax is 5%
How much is the after-tax total?

3. 7% sales tax on one VCR

What is the sales tax?

4. 26% discount on one Answering Machine
Sales tax is 9%
How much is the after-tax total?

5. You ordered two Portable CD Players on-line. Wacky Willy offers a 10% discount off the price of the Portable CD Player. You pay no tax, but the total shipping charge for the order is \$7.37.
What is the total to pay?

6. 10% discount on one 101-disc CD Changer
What is the discount?

7. You want to buy the Cordless Phone and also the 101-disc CD Changer.
If the sales tax is 9.5%, what is your after-tax total?

8. You want to buy the Laptop Computer and also the 50 inch television.
If the sales tax is 5.5%, what is your after-tax total?

9. 5.6% sales tax on one Wireless Phone
What is the sales tax?

10. 6% sales tax on one DVD Player
What is the sales tax?

Solve each problem. Round to the nearest cent.
(For simplicity assume 360 days in a year)

1. Jane deposited \$15,000 at a bank that pays 9% interest. Bill deposited \$9,000 at a bank that pays 14% interest. Who will receive more interest in a year, and by how much more?
2. Michael borrowed \$27,000 for 210 days at 9% annual interest. However, Michael received a bonus from his boss and was able to repay the loan in 30 days. How much interest did Michael save by paying the loan early?
3. Michael spent \$700 on a Socialbank credit card. The charge card charges a yearly interest rate of 18%. Socialbank adds this interest to the principal after each year, and Michael needs to pay interest both on the principal and the added interest. What will be the balance after 3 years?
4. Amy borrowed \$1,800 from the bank for 1 year at 5% interest. When Amy pays the bank back in 1 year, how much in principal and interest altogether will be paid?
5. Jane deposited \$13,000 in an account that pays 5.8% interest each year. The amount of interest is paid at the end of each year. How much will the account have after 5 years?
6. Brad purchased a house for \$143,000. To pay for the house, Brad took out a 30 year mortgage and pays the

bank a yearly interest fee of 9.2%. In seven years, how much in interest fees was paid to the bank?

Payroll Problems

1. Bill received \$286 gross pay for 26 hours worked. What is the hourly rate received?

2. Ed's Construction pays its sales people the following commissions on all sales:

1% on the first \$1,000 in sales.

2% on the next \$3,000 in sales.

2% on any sales over \$5,000.

How much in commissions are earned by the following employees:

(Calculate to the nearest cent)

Employee	Sales	
Employee # 1	\$5,875	_____
Employee # 2	\$11,398	_____
Employee # 3	\$10,994	_____
Employee # 4	\$3,554	_____

3. Bill is paid \$47,000 annually. The pay period is biweekly.
What is the salary per pay period?
4. Greg is paid \$65,000 annually. What is the weekly salary?
5. Jane is paid \$73,000 annually. The pay period is monthly.
What is the salary per pay period?
6. Brad receives a weekly salary of \$1150 plus earns a 19% commission on sales. What will the monthly gross earnings be if total sales for the month are \$48,247?
7. At Dairy Creamer Daily News, employees' paychecks can have the following deductions.

Federal Tax	39%	<i>Mandatory</i>
FICA Tax	11%	<i>Mandatory</i>
Provincial Tax	4%	<i>Mandatory</i>
401k	7%	<i>Optional</i>
Dental	2%	<i>Optional</i>
Health	7%	<i>Optional</i>
Life Insurance	1%	<i>Optional</i>

Calculate the net pay for the following employees...

Employee # 1 has a gross pay of \$1,475
and has optional deductions 401k, Life
Insurance.

Employee # 2 has a gross pay of \$516 and has optional deductions 401k.

8. Determine the total hours worked by Greg if the hourly rate is \$26 and the total gross pay is \$312.
9. Jane receives a 10% commission on sales. What is the commission on \$46,389 in sales?
10. Brad receives a weekly salary of \$997 plus earns a 25% commission on sales. What will the monthly gross earnings be if total sales for the month are \$34,795?

Interest Problems

11. What is the simple interest on a \$900 loan with an annual interest rate of 13% for 3 years?
12. What is the simple interest on a \$2,000 loan with an annual interest rate of 15% for 3 years?

Misc. Problems

13. Compute the discount on a gift you are buying if the price is \$86 but it is being offered at a 40% discount.
14. You purchased a Sondo radio for \$117.59. You had a coupon for \$31 off the radio. An extended warranty was extra, but you decided to buy it for \$16. If you also had to pay tax of 1.21% what was the total amount you paid?

Answer Key

Book 14019 – Personal Finance

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1. \$546
2. \$1450
3. \$1884.62
4. \$6166.67
5. \$10281.75
6. a. \$367.96
b. \$431.14
- c. \$799.26
- d. \$404.05
7. \$1576.92
8. a. \$190
- b. \$190
- c. \$190
- d. \$540
- e. \$190
9. 11 ½hours
10. 12 hours

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1. \$5000
2. \$3000
3. \$6000
4. \$1600
5. \$416.67
6. \$150
7. \$83.33
8. \$115.38
9. \$23.08
10. \$57.69
11. \$190.31 under budget
12. \$75 over budget
13. \$225.21 over budget
14. \$750
15. \$180
16. \$270
17. \$37.50
18. \$17.31

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1. \$43.20
2. \$68.57
3. \$2151.30
4. \$71.86
5. \$1033.47
6. \$12.38
7. \$63.60
8. \$16.53
9. \$25.80
10. \$7.21

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1. Yes

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2. \$40
3. \$4
4. \$38.70
5. \$24.80
6. \$42
7. \$37.80
8. \$35.20
9. \$48.60
10. \$41
11. \$77.40
12. \$12.60
13. \$20.40
14. \$326.96
15. \$102.55

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2. \$122.50; \$622.50 3. \$90; \$990
4. \$15.20; \$395.20 5. \$151.20; \$511.20
6. \$54; \$594 7. \$64.35; \$454.35
8. \$303.75; \$1203.75 9. \$339.66; \$1079.66
10. \$1392.02; \$5662.02
11. \$1349.04; \$7189.04 12. \$693; \$1818
13. \$903.04; \$2628.04
14. \$51849.45; \$143069.45
15. \$22915.45; \$68960.45

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2. \$16.50; \$316.50 3. \$1.67; \$401.67
4. \$10.50; \$710.50 5. \$7.33; \$447.33
6. \$26.60; \$406.60 7. \$6.50; \$396.50
8. \$57; \$817 9. \$244.53; \$6474.53
10. \$274.05; \$5944.05 11. \$17.45; \$1377.45
12. \$36.23; \$936.23 13. \$190.94; \$2540.94
14. \$1529.09; \$28497.09
15. \$250.52; \$2604.52

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1. \$440 2. $3\frac{3}{143}\%$ 3. $3\frac{39}{172}$ years
4. $9\frac{9}{17}\%$ 5. \$9 6. $11/70$ year

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	Interest	Amount
1.	\$119.48	\$219.48
2.	\$808.46	\$1708.46
3.	\$785.25	\$2185.25
4.	\$10789.28	\$20789.28
5.	\$6067.49	\$14567.49

6.	\$15750.68	\$18500.68
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1. \$451.14 2. \$435.08 3. \$506.10
4. \$442.48 5. \$468.64 6. \$438.08
7. \$22775.40 8. \$126530.40
9. \$156892.80 10. \$67671 11. \$229992
12. \$139381.20 13. \$224204.40
14. \$280339.20
15. Question 13 by \$56134.80 16. \$383.32

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1. \$50.59 2. \$126.84 3. \$6.72
4. \$66.95 5. \$255.77 6. \$16.40
7. \$238.71 8. \$3346.46 9. \$4.76
10. \$8.34

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1. Jane by \$90 2. \$1215 3. \$1150.12
4. \$1890 5. \$17233.42 6. \$92092

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1. \$11 2. a. \$117.50 b. \$227.96
- c. \$219.88 d. \$10 3. \$1807.69
4. \$1250 5. \$6083.33 6. \$13766.93
7. a. \$707.79 b. \$250.10 8. 12 hours
9. \$4638.90 10. \$12686.75 11. \$351
12. \$900 13. \$34.40 14. \$103.83