

MIXED REVIEW

Suppose that you write a check for the amount shown. Write the amount in words.

- \$500
- \$10,100.10
- Which approach will save you more money; to make a 20% down payment on a purchase, or to save up until you can afford a 30% down payment? Explain your answer.
- Determine the effective rate of interest if the APR is 14.75%.

Complete the following chart to determine how much the interest cost will be if you pay 5% of the amount due to the nearest dollar each month and your credit card carries an APR of 9%.

	Month	Balance	Interest	Amount Owed	Payment
5.	1	\$1000.00			
6.	2				

- What is the total interest for the two months?
- What happens to the nation's money supply when the Federal Reserve System increases the percent of required reserves that banks must hold?
- You earn \$7.25 per hour. You worked 46 hours last week. You receive $1\frac{1}{2}$ times your hourly rate for any hours over 40. Find your total wages for last week.
- Last month the Wilson family spent \$205 on the car payment, \$506 on credit card payments, \$850 on utilities and rent, \$560 on food, and \$2,000 on everything else. To the nearest tenth of a percent, what percent of their take-home pay did the family spend on credit payments?
- Use the Time-to-Pay-Off formula to find the number of months required to pay off a credit card balance of \$1,850. The APR is 15% and the monthly payment is \$120.
- You have a loan of \$25,000 at 10.5% for 5 years for which you have been making monthly payments of \$537.35. How much money will you save if you prepay the loan at the end of 40 months?
- Suppose that a bank's reserve requirement is 25%. How much new money can be created from a deposit of \$2000?

Some students purchased a number of damaged tote bags for \$1.00 each and repaired them for \$0.50 each. They plan to sell the repaired tote bags.

- What is the unit cost for purchasing and repairing the tote bags?
- Find the total cost for 56 tote bags.
- The fixed costs are \$62. What are the total costs?



While Lily and Manuel are taking a look at life insurance, their friend Eleanor has other concerns—the financial well-being of her grandparents. Her grandmother, who retired earlier this year, has had to cut back on some expenses to help her family make ends meet.

Eleanor's grandfather retired three years ago. Since then, he has had some costly health problems that are not completely covered by Medicare. In addition to dealing with these past cost burdens, both grandparents have had to purchase supplementary health insurance to cover some of their future medical expenses that will not be covered by Medicare.

Eleanor is not certain of the details, but she does know that the retirement pensions that her grandparents receive are just enough to keep them comfortable. She also knows that her grandparents have had a little difficulty adjusting to the fact that they do not have as much income as they did when they were both working. Eleanor's mother is ready to help her parents in case of a financial emergency but hopes that she will not have to step in. Their circumstances have caused her to begin reevaluating her own retirement plans, and even Eleanor has suddenly become interested in topics such as annuities and Individual Retirement Arrangements.

OBJECTIVES: In this lesson, we will help Eleanor to:

- Examine reasons for investing in retirement plans that are tax deferred, such as annuities and Individual Retirement Arrangements (IRAs).
- Calculate the future value of regular payments invested at compound interest.
- Compare the future value of cash-value life insurance with the future value of the same amount invested at compound interest.
- Compare the difference in accumulated cash value between investing directly and saving indirectly through whole life insurance.

SOCIAL SECURITY IS NOT ENOUGH

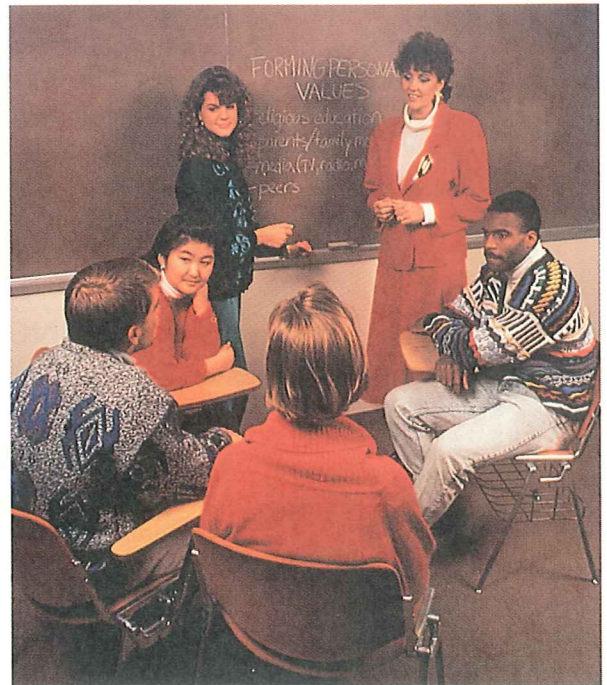
Everyone faces the fear of outliving one's pension. Eleanor's grandparents have some degree of financial security because they planned ahead for their retirement. They knew that they could not rely on their monthly Social Security checks, since that system was never intended to provide one's sole source of retirement income, even though the system is adjusted upward periodically for inflation. Instead, Eleanor's grandparents learned to take advantage of supplementary sources of retirement income such as annuities and Individual Retirement Arrangements.

ANNUITIES

Years ago, Eleanor's grandmother placed some of her income from college teaching in a tax-deferred annuity. An **annuity** is an investment plan that provides income upon retirement. Annuities, which are usually purchased through insurance companies, offer two advantages—forced savings and tax deferral. Grandmother chose to make payments into her annuity through a payroll deduction. The amount that she requested was automatically deducted from her paycheck each month.

Now that she has retired, Grandmother withdraws the money that she originally contributed as well as interest on that money. She doesn't pay taxes on the returned contributions, but she does pay taxes on the interest income from the annuity.

Grandmother's annuity has provided her with two major tax advantages. First, she has never had to pay any taxes on any of the interest that has been accumulating for all those years—until now. During this long period of time, that interest has been earning more interest. She would never have received all that additional money if her tax obligation had not been delayed until her retirement years. Second, even though she now has to pay the taxes, they are less than they would have been if she had paid them in earlier years. The reason? Grandmother's tax *rate* on her pension income is lower than it was on her much higher working income. The lower your income, the lower your tax rate.



INDIVIDUAL RETIREMENT ARRANGEMENTS (IRAS)

An **Individual Retirement Arrangement (IRA)**, sometimes called an individual retirement *account*, has the same **tax shelter** advantages just described for annuities. It allows employees (and some self-employed people) to put up to \$2000 a year into such a plan to shelter the accumulated interest from taxes. If the employee's income is less than a certain amount, then the contribution can also be fully deducted from the adjusted-gross-income line on the federal tax return. The maximum income for a full deduction is, at this writing, \$40,000 for a married couple and \$25,000 for an individual. (A partial deduction is allowed on up to \$10,000 above these levels.) Employees who have no employer pension plan are exempt from these income maximums.

You may withdraw money from an IRA, but you will pay a tax penalty and possibly an interest penalty unless you are either disabled or over the age of 59½. You may choose the kind of institution that you want to handle your IRA, for example, a bank, a brokerage firm, or a mutual fund group. You may also set up more than one IRA among a variety of institutions. It is important never to combine your IRA account with non-IRA funds.

EMPLOYER PENSION PLANS

Some employers offer pension plans for their employees. If such a plan is approved by the Internal Revenue Service (IRS) as a *qualified plan* or as a **401(k) plan**, then an employer will make tax-sheltered contributions to the plan that are larger than an employee could get through a regular IRA. In some such plans, the employee may also contribute to the plan, but whether or not those contributions are tax deductible depends on the exact nature of the plan. Unlike its rules for IRAs, there are no IRS-imposed income maximums on participants in these employer plans. A self-employed person may set up a similar tax-sheltered plan, called a **Keogh plan**.

These employer and Keogh plans have the disadvantage that, unlike IRAs, they are somewhat complicated to set up and to administer. To avoid these complications, some employers or self-employed people prefer to establish a **Simplified Employee Pension Plan (SEP)** that allows a person to contribute to an IRA without all of the usual IRA rules and limitations.

BALANCING INSURANCE AND INVESTMENTS

Eleanor is especially curious about cash-value life insurance as an investment vehicle compared to a direct investment such as a mutual fund.

The CVLI/BTID Controversy A controversy has arisen in the last few years over the merits of cash-value life insurance compared to term insurance. Consumers have assumed, perhaps because of persuasive insurance salespeople, that cash-value insurance is a good way to combine adequate life insurance coverage with a means for saving money. However, some people in the insurance industry have begun to advise their customers that they can save much more money by buying term insurance and investing the money that they save in

instruments such as certificates of deposit, mutual funds or even stocks or bonds. These opposing viewpoints are expressed in the code phrase CVLI/BTID, which stands for *Cash-Value Life Insurance/Buy Term, Invest the Difference*.

If your employer offers you the opportunity to buy life insurance at work, you may be able to save significantly on the annual premium. Another way of saving on the cost of the premium is to find a company that sells **low-load insurance policies**, policies with a very low commission. Over a long period the annual savings can be very important. One insurance expert has concluded that over 20 years, a full-commission cash-value insurance policy would have to give a yield that was $1\frac{1}{2}$ percentage points higher than a low-commission insurance policy to match the cash value of the low-load policy. This could amount to a difference of several thousand dollars over 20 years.

The most difficult choice in your planning may be the selection of interest rates that you can reasonably expect to earn over the next 30 years. Since even professional economists cannot accurately predict future interest rates, your best course may be to start with the current rates for government bonds, both short-term (six-month Treasury bills) and long-term (30-year bonds) and make your own projection about rates in the future. Since government bonds are the safest investments of all, you have a right to expect higher returns from any investment that is not as safe as they are.

Do not have unrealistic expectations about the 30-year performance of your own investments. If you can obtain a long-term average of five percentage points more than the yearly return on a 30-year government bond, then you will be doing reasonably well. You will be doing very well indeed if you consistently average ten points a year above such bonds.

On the basis of your research, you can decide whether it is better for you to save through an insurance company or to use the insurance company solely for protecting your family's earning power and do your investing directly. Careful decision making on your part may lead to high long-term yields. Even our teenagers, who see retirement as something many years in the future, know the difference between having \$20,000 at retirement and having \$200,000!

Ask Yourself

1. What are tax-deferred annuities?
2. What are Individual Retirement Arrangements?
3. What is the earliest age at which you can normally withdraw money from an IRA without penalty?

ALGEBRA REVIEW

Find the value of A or B in the following formulas for the values given.

$$B = \frac{(1.01)^n - 1}{0.01}$$

$$A = \frac{p[(1+r)^n - 1]}{r}$$

1. $B; n = 3$
2. $B; n = 30$
3. $A; n = 4, r = 0.03, P = 1000$
4. $A; n = 10, r = 0.065, P = 1500$
5. $A; n = 20, r = 0.09, P = 2000$
6. $A; n = 40, r = 0.10, P = 750$
7. $A; n = 20, r = 0.15, P = 2000$

SHARPEN YOUR SKILLS

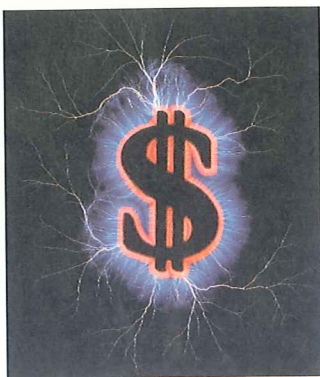
SKILL 1

To determine the future value of money that is deposited into an interest-bearing account on a regular basis, use the formula for the **future value of a periodic investment**.

Future Value of a Periodic Investment Formula

$$A = \frac{p[(1+r)^n - 1]}{r}$$

where A = the future value of the investment
 p = the investment made each period
 r = the interest rate for the period
 n = the number of periods



EXAMPLE 1 Eleanor's father and mother are both 43. They have just opened IRA accounts that they hope will supply them with extra money when they retire 22 years from now at the age of 65. Each year, they will deposit \$2000 dollars into each account, which they are assuming will pay 8% interest, compounded annually.

QUESTION By the time they are 65, how much money will be in each parent's account?

SOLUTION

$$\begin{aligned} A &= \frac{p[(1+r)^n - 1]}{r} && \text{Future value of a periodic investment} \\ &= \frac{2000[(1+0.08)^{22} - 1]}{0.08} && p = 2000, r = 0.08, n = 22 \\ &= 110,913.51 \end{aligned}$$

When they retire, Eleanor's parents will each have \$110,913.51 in their accounts. This is \$66,913.51 more than the \$44,000 that they each contributed to their accounts over the 22 years.

SKILL 2

EXAMPLE 2 Suppose Eleanor's grandfather purchased \$50,000 worth of whole life insurance when he was 25.

- QUESTIONS**
1. How much would his annual premium be?
 2. How much would he pay for the insurance over 40 years?
 3. If he had invested the premium money every year in an annuity that paid $8\frac{1}{2}\%$ interest, compounded annually, how much would his savings be worth at the end of 40 years?

SOLUTIONS

1. See the Comparison Table for Term and Whole Life Premiums in the Reference Section. The premium for \$50,000 of whole life insurance is half of the premium for \$100,000; that is, $\$918 \div 2$, or \$459.
2. The total paid in 40 years would be

$$459 \cdot 40, \text{ or } \$18,360$$

He would have paid \$18,360 in premiums over 40 years.

3. Use the formula for the future value of a periodic investment.

$$\begin{aligned} A &= \frac{p[(1+r)^n - 1]}{r} \\ &= \frac{459 [(1 + 0.085)^{40} - 1]}{0.085} && p = 459, r = 0.085, n = 40 \\ &= 135,718.29 && \text{To the nearest cent} \end{aligned}$$

His annuity would be worth about \$135,718, or about \$80,000 more than the cash value of the insurance policy after 40 years. This money would remain untaxed until he began to receive his periodic payments during retirement. If Eleanor's grandfather had chosen to use the \$18,360 to buy the annuity, then he would have been without the \$50,000 insurance for 40 years.

SKILL 3

The following table shows the cash value (accumulation of savings) of a whole life insurance policy of \$100,000 over the first 20 years. This table is also in the Reference Section.

ACCUMULATED CASH VALUE OF \$100,000 WHOLE LIFE POLICY					
AGE OF ISSUE: 25					
Year	Person's Age	Cash Value	Year	Person's Age	Cash Value
1	25	\$ 0	11	35	\$10,187
2	26	700	12	36	11,501
3	27	1500	13	37	12,860
4	28	2300	14	38	14,246
5	29	3100	15	39	15,667
6	30	4020	16	40	17,094
7	31	5158	17	41	18,555
8	32	6349	18	42	20,014
9	33	7538	19	43	21,563
10	34	8898	20	44	23,197

EXAMPLE 3 Eleanor was interested in knowing whether her grandfather could have been better off financially by buying term insurance instead of whole life at age 25 and investing the money saved in an IRA at $8\frac{1}{2}\%$.

QUESTIONS

1. If Eleanor's grandfather had bought \$50,000 worth of whole life cash-value insurance at age 25, what would the cash value have been when he was 44?
2. How much money could a 25-year-old man accumulate between the ages of 25 and 30 by buying a \$50,000 term policy instead of a whole life policy and investing the difference in the two premiums in an IRA at $8\frac{1}{2}\%$?
3. How does the money accumulated in Question 1 compare with the cash value that would have accumulated in the whole life policy in the same five-year period?

SOLUTIONS

1. Looking at the table, you can see that the value at age 44 would have been $\$23,197 \div 2$, or $\$11,598.50$.
2. Eleanor used the Comparison Table for Term and Whole Life Premiums in the Reference Section to find the difference between the premiums for the two kinds of policies at age 25. To obtain the premiums for a \$50,000 policy, she divided each table entry by 2.

$$\begin{array}{rcl} \text{Whole life premium} & - & \text{term premium} = \text{annual saving} \\ 459 & - & 103.50 = 355.50 \end{array}$$

Next, Eleanor found how much an annual investment of \$355.50 will grow to in five years compounded annually at $8\frac{1}{2}\%$. She used the formula for the future value of a periodic investment.

$$A = \frac{p[(1+r)^n - 1]}{r}$$

$$A = \frac{355.50[(1.085)^5 - 1]}{0.085} \quad p = 355.50, r = 0.085, n = 5$$

$$A = 2106.47$$

The annual payments will grow to about \$2106.

3. From the table entitled Accumulated Cash Value of \$100,000 Whole Life Policy, Eleanor found that the cash value of the policy would be worth about $\$3100 \div 2$, or $\$1550$ at the end of 5 years. By buying a term policy instead of a whole life policy and investing the difference at $8\frac{1}{2}\%$, Eleanor's grandfather would have accumulated

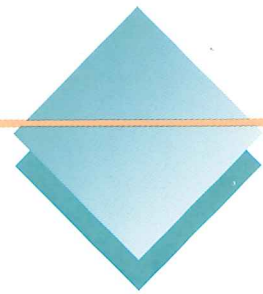
$$2106 - 1550$$

or an extra \$556 at the age of 30 to reinvest tax-sheltered for another 30 or 35 years; that is, until he retired. When he renewed his term policy at age 30, 35, 40, and so on, his premium would gradually rise. This would reduce the size of the premium savings that he realized in the early years.

If Eleanor's grandfather had bought term insurance instead of whole life, he would have been better off *provided* that he could be reasonably sure of averaging an $8\frac{1}{2}\%$ return or better. Otherwise, the whole life option might have been a better choice after all.



TRY YOUR SKILLS



Use the formula for the future value of a periodic investment to answer Exercises 1–4.

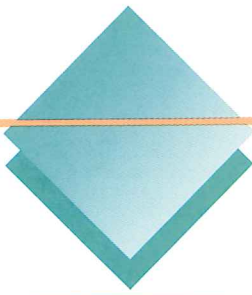
1. If you begin to contribute \$2000 a year at age 45 to an IRA account that you expect to pay 8% per year, how much will you have in your account at age 65?
2. If you begin contributing the same amount at age 35, how much will you have at age 60?
3. Suppose you purchase \$100,000 worth of insurance when you become 25. Use the Comparison Table for Term and Whole Life Insurance in the Reference Section to find the premium per year. Then calculate how much you will pay in premiums in 40 years.
4. If you invested the amount of the insurance premium in Exercise 3 in an annuity at a return of $8\frac{1}{2}\%$, how much would your annuity be worth at the end of 40 years?

Use the table in this lesson entitled Accumulated Cash Value of \$100,000 Whole Life Policy Issued at Age 25 to find the cash value of a \$100,000 policy at the following ages. The policy is bought at age 25.

5. 30 6. 35 7. 40 8. 42

Use the Comparison Table for Term and Whole Life Premiums in the Reference Section, the table entitled Accumulated Cash Value of \$100,000 Whole Life Policy in the Reference Section, and the formula for the future value of a periodic investment to answer Exercises 9–14.

9. What is the annual premium for a \$100,000 five-year renewable term life insurance policy for a 30-year-old person?
10. What is the annual premium for a \$100,000 whole life insurance policy for a 30-year-old person?
11. How much money is saved each year if a 30-year-old person buys the term policy instead of the whole life policy?
12. Use the formula for the future value of a periodic investment to find how much tax-deferred money a 30-year-old person could accumulate between the ages of 30 and 35 by buying a \$100,000 term policy instead of a whole life policy and then investing the money saved because of the lower premium in an IRA that gives an annual return of $7\frac{1}{2}\%$.
13. What would be the cash value of the whole life insurance policy for a 30-year-old person after 5 years?
14. Compare the cash value of the insurance policy with the value of the IRA at the end of 5 years. Which is the more profitable investment?



EXERCISE YOUR SKILLS

KEY TERMS

annuity
401(k) plan
future value of a
periodic
investment
Individual
Retirement
Arrangement
(IRA)
Keogh plan
low-load insurance
policies
Simplified
Employee
Pension Plan
(SEP)
tax shelter

1. Why should people invest in retirement plans such as tax-deferred annuities and Individual Retirement Arrangements?
2. What are two advantages of purchasing tax-deferred annuities through payroll deductions?
3. Under what circumstances may a person not defer the taxes on his or her IRA contribution?

Use the formula for the future value of a periodic investment to answer Exercises 4–6.

4. Suppose that at the age of 35 you begin contributing \$2000 a year to an IRA account that you think will pay an average of 10% a year. How much can you expect to have in your account at age 65?
5. If you begin contributing the same amount at age 35, how much more will you have at age 65 than if you had begun at age 45?
6. If you begin contributing the same amount at age 35, how much more will you have at age 65 than if you had begun at age 40?
7. Suppose you purchase \$100,000 worth of whole life insurance when you become 30. Use the Comparison Table for Term and Whole Life Insurance in the Reference Section to find the premium per year. Then calculate how much you will pay in premiums over 35 years.

Suppose that you wanted to know how well you would do at the end of 35 years if you had invested the insurance premium in Exercise 7 in an annuity at a return of 9% per year.

8. Use the formula for the future value of a periodic investment to find the value of the annuity in 35 years.
9. Explain why the results of Exercise 8 do not necessarily imply that the annuity investment is the better choice.

Use the Comparison Table for Term and Whole Life Premiums in the Reference Section, the table entitled Accumulated Cash Value of \$100,000 Whole Life Policy in the Reference Section, and the formula for the future value of a periodic investment to answer Exercises 10–13.

10. How much money is saved each year if a 35-year-old person buys a term policy instead of a whole life policy?
11. Determine how much tax-deferred money a 35-year-old person could expect to accumulate between the ages of 35 and 40 by buying a \$100,000 term policy instead of a whole life policy and investing the money that is saved because of the lower premium in an IRA that will earn $7\frac{3}{4}\%$ per year.
12. What would be the cash value of the whole life insurance policy for a 35-year-old person after 5 years?

13. Compare the cash value of the insurance policy with the value that the person expects the IRA to have at the end of 5 years. Which seems to be the more profitable investment?
14. Under what circumstances would it be better for a young person to choose a term policy instead of a whole life policy and then use the money saved because of the lower premium to invest into an annuity or IRA?
15. Under what circumstances would it be better for a young man or woman to purchase a whole life policy rather than a term policy, even though the premium money that would be saved might be more profitably invested in an annuity or IRA?

MIXED REVIEW

Each of two real-estate salespeople sold a house for \$180,000. Find the commission earned by each person.

1. Rafael gets a straight 5% commission on the entire sales price.
2. Sally gets a $4\frac{1}{2}\%$ commission on the first \$100,000 and a 6% commission on any amount over \$100,000.
3. Benjamin Franklin once remarked, "Money makes money, and the money that money makes makes more money." In two words or fewer, what money concept was Franklin referring to?
4. For an all-purpose credit account, set up a chart to show the first 3 monthly payments, and find the total interest paid over 3 months at 1.5% interest per month. The beginning balance is \$720, and you make monthly payments of 10% of the amount owed to the nearest dollar. During the second month you make an additional purchase of \$125.
5. In the Larsen family, \$190 is spent on the car payment, \$400 on credit card payments, \$980 on utilities and rent, \$760 on food, and \$1,170 on everything else. To the nearest tenth of a percent, what percent of their take-home pay is the family spending on credit payments?
6. The probability that a person will be alive in 1 year is 0.99894. What is the probability that the person will die within one year?
7. Ralph is considering renting a computer on a rent-to-own credit plan that allows him to rent the computer for \$90 per month for 24 months. If he decides to buy the computer, the rental fees will be applied to cover the entire purchase price. How much will the computer cost him under this plan?
8. Suppose that Ralph purchases the computer in Exercise 7 for \$1,800 with an installment loan with monthly payments at 12% annual interest over 2 years. Is this a better deal than the rent-to-own plan? Explain your answer.

CHAPTER 7 REVIEW

1. Why is it important for people to have adequate life insurance?
2. How does a person decide whether to purchase term insurance or cash-value insurance?
3. Why might young families be wise to purchase decreasing term insurance?
4. Why do people need to supplement their Social Security pensions with their own retirement plans?

Use the Multiples-of-Salary Chart in the Reference Section to find the amount of life insurance that each of these income earners should buy.

5. Juanita is 35 years of age and has gross earnings of \$40,000. She needs 60% income replacement.
6. Joshua is 45 years of age and has gross earnings of \$30,000. He needs 75% income replacement.

Use the Comparison Table for Term and Whole Life Premiums in the Reference Section to find the yearly premiums for the amounts of insurance given below.

7. \$50,000 whole life insurance at 25 years of age
8. \$150,000 term insurance at 45 years of age
9. \$200,000 term insurance at 40 years of age
10. \$250,000 whole life insurance at 35 years of age

John Andrews is considering the purchase of a one-year term policy with a face value of \$90,000. The partially completed table below shows how an insurance company evaluates John's ability to remain alive for one year.

COMPANY'S GAIN OR LOSS ON ONE POLICY (before deducting expenses)		
Possible Outcome	Probability of Outcome	One-Year Gain/Loss
John Andrews lives.	0.99906	x
John Andrews dies.	?	$x - 90,000$

11. Find the probability that John Andrews will die in the next year.
12. The company has direct and indirect expenses of \$20 for each policy it issues. Find the premium that the company must charge in order to break even; that is, neither to make nor to lose money on this policy.

Use the table entitled Expected Deaths per 100,000 Alive at Specified Age on page 331 to find the break-even premium for a one-year term insurance policy for each indicated individual. In each case, assume that the direct and indirect expenses for issuing one policy are \$20.

13. An \$80,000 policy for a man or woman of 28
14. A \$250,000 policy for a man or woman of 20

Use the table entitled Expected Deaths per 100,000 Alive at Specified Age on page 331. What profit does an insurance company expect to make for each one-year term insurance policy? Assume that the direct and indirect expenses for each policy are \$20.

15. Face value: \$60,000; age of insured: 21; annual premium: \$120
16. Face value: \$175,000; age of insured: 19; annual premium: \$310

Use the formula for the future value of a periodic investment to answer Exercises 17–18.

17. At the age of 30, André begins to contribute \$2000 a year to an IRA account that he expects to pay 11% a year. How much does he expect to have in the account at the age of 42?
18. If André had begun his IRA contributions at the age of 20, how much more would he expect to have in the account at age 42 than he actually expects because of his beginning at the age of 30?

In Exercises 19–20, use the Comparison Table for Term and Whole Life Premiums on page 326, and the formula for the future value of a periodic investment.

19. Miguel purchases \$150,000 worth of whole life insurance when he is 35 years old. How much will he pay in premiums over 30 years?
20. If Miguel had invested the amount of the insurance premium in Exercise 19 in an annuity that gave him an annual compounded return of 7% interest, how much would the account be worth at the end of 30 years?

Use the Comparison Table for Term and Whole Life Premiums in the Reference Section, the table entitled Accumulated Cash Value of \$100,000 Whole Life Policy in the Reference Section, and the formula for the future value of a periodic investment in Lesson 7–3 to answer Exercises 21–24.

21. How much money does a 40-year-old person save each year if he buys the term policy instead of the whole-life policy?
22. Determine how much tax-deferred money a 40-year-old person could accumulate between the ages of 40 and 45 by buying a \$100,000 term policy instead of a whole life policy and investing the difference between the two premiums in an IRA account that is expected to return $7\frac{1}{2}\%$ per year.
23. What would be the cash value of the whole life insurance policy for a 40-year-old person after 5 years?
24. Compare the cash value of the insurance policy with the value of the IRA at the end of 5 years. Which is the more profitable investment?

CHAPTER 7 TEST

1. Melanie is 45 years old and has gross earnings of \$65,000. Use the Multiples-of-Salary Chart for Net Income Replacement on page 325 to find the amount of life insurance that she should buy. She needs 60% income replacement.
2. Use the Comparison Table for Term and Whole Life Premiums on page 326 to find the yearly premium for a \$100,000 whole life insurance policy purchased at the age of 20.
3. Use the table entitled Expected Deaths per 100,000 Alive at Specified Age on page 331 of Lesson 7-2 to find the break-even premium for a one-year \$150,000 term insurance policy for a man or woman of 18. Assume that the direct and indirect expenses for issuing one policy are \$20.

Use the table entitled Expected Deaths per 100,000 Alive at Specified Age on page 331. What profit does an insurance company expect to make for each one-year term insurance policy? Assume that the direct and indirect expenses for each policy are \$20.

- | | |
|-------------------------|--------------------------|
| 4. Face value: \$90,000 | 5. Face value: \$350,000 |
| Age of insured: 20 | Age of insured: 29 |
| Annual premium: \$170 | Annual premium: \$980 |

Use the formula for the future value of a periodic investment to answer Exercises 6 and 7.

6. At the age of 25, Marie began contributing \$1500 a year to an annuity paying 10.5% annually. How much will she have in the account at the age of 40?
7. If Marie had begun her annuity contributions at the age of 20, how much more would have been in the account at age 40 than was there because she began at the age of 25?

Use the Comparison Table for Term and Whole Life Premiums in the Reference Section, the table entitled Accumulated Cash Value of \$100,000 Whole Life Policy in the Reference Section, and the formula for the future value of a periodic investment to answer Exercises 8-11.

8. How much money is saved each year if a 45-year-old person buys the term policy instead of the whole life policy?
9. Find how much tax-deferred money a 45-year-old person could accumulate between the ages of 45 and 50 by buying a \$100,000 term policy instead of a whole life policy and investing the difference between the two premiums in an IRA at 8% per year.
10. What would be the cash value of the whole life insurance policy for a 45-year-old person after 5 years?
11. Compare the cash value of the insurance policy with the value of the IRA at the end of 5 years. Which is the more profitable investment?

CUMULATIVE REVIEW

A company has the following fringe benefits policy:

Employee	Salary	Fringe Benefits Policy
Bank vice-president	\$51,000	7.65% of gross for FICA taxes
		3% of gross for retirement
		\$160 per month for life and health insurance
		25 nonworking days

- Find the amount that the company must pay annually for extra taxes, retirement, life and health insurance, and other indicated fringe benefits.
- Find how much salary is paid for the indicated number of nonworking days in a total of 240 operating days.
- Frank's earnings as a real-estate salesman are based on a graduated commission. He receives 3.5% on each sale up to \$150,000 and 5% of the amount above \$150,000. How much would he earn for selling a \$215,000 house?
- Suppose you wrote 28 checks in June. Your bank charges \$0.03 per check for the first 20 checks and \$0.15 for each check over 20. How much were your June bank charges?
- What would be the interest on \$950 at 9.5% for one year on an investment that is compounded semiannually?
- Find the total financed price, the total interest, and the dealer's profit for each car-sale plan for a car that is priced at \$12,900.

	Plan A	Plan B
Rebate	0	\$1500
Rate	4.5%	10.5%
Time	48 months	48 months
Monthly payment		
Total financed price		
Total interest		
Dealer's profit		

- Suppose that your credit card charges 1.75% interest per month. You pay 10% of the balance to the nearest dollar each month. Complete a table using the following columns for 3 months. Your beginning balance is \$690.

Month	Balance	Interest	Amount Owed	Payment
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- Use the Comparison Table for Term and Whole Life Premiums in the Reference Section to find the yearly premium for \$200,000 of whole life insurance purchased at the age of 35.

PROJECT 7-1: Comparing Types of Available Insurance

Work with a group of your classmates to complete this activity.

1. Each member of the group should choose two insurance companies that sell policies in your area.
2. Find out what types of life insurance policies each company sells.
3. Obtain a list of the premiums for each type of policy.
4. Create a bulletin board to display your findings.
5. Discuss your findings with the other members of your group.
6. Evaluate the various policies and premiums. Decide which company and which policy provide the best investment at the lowest cost.
7. Prepare a brochure stating which policy is the best and why. Make the brochure colorful and eye-catching so it might be used as an advertisement for the policy.

PROJECT 7-2: How are Insurance Premiums Determined?

1. Contact various insurance companies to find out what statistics they use to determine the premiums for different types of life insurance.
2. Contact people (actuaries) who compile the statistics used by insurance companies to determine premiums. Find out how they compile the statistics.
3. Write a report summarizing your findings.
4. Use reference books such as a world almanac to study the changes in the life expectancy of men and women in the last century.
5. Compare the changes in life expectancies with the changes in life insurance premiums over the years for which you can find figures. How do they compare?