Chapter 6 Exercises

Solve each problem. Round your answer to the nearest cent, if necessary.

1. Determine the interest owed on $1200 for five years at a rate of 6.5%.

2. Assume you are purchasing a new computer with "90 days same as cash" to make the purchase. If the cost of the computer is $1255, tax included, with an annual interest rate of 16.99%, how much would you owe on the 91st day if you make no payments during the first 90 days?

3. Use the compound interest formulas to **a.** calculate the total amount in the account after the given time period and **b.** determine the amount of interest earned.

$P = \$5500$, $r = 2.5\%$ compounded weekly, $t = 10$ years

$P = \$4755$, $r = 4.5\%$ compounded monthly, $t = 10$ years

$P = \$7300$, $r = 19.9\%$ compounded continuously, $t = 20$ years

4. Miguel deposits $2850. Determine the annual percentage yield for each of the following. Round each answer to the nearest hundredth of a percent.

a. APR of 5% compounded monthly

b. APR of 5% compounded weekly

c. APR of 5% compounded daily

5. A couple deposits $12,500 into an account earning 2.75% annual interest for 25 years.

a. Calculate the future value of the investment if interest is compounded monthly.

b. Calculate the future value of the investment if interest is compounded weekly.

A savings account is compounded monthly for five years with an APR of 4.99%. For each principal amount, calculate the following. Round your answer to the nearest cent, if necessary.

a. The future value of the investment

b. The amount of interest earned

6. $15,000

7. $30,000

8. $60,000

9. $120,000

10. ABC Lending lists the following APR rates for loans. Determine the APY for each category.

First Bank of Lending

Loan Amount	APR
< $20,000	9.75%
$20,000–$99,999	5.99%
≥ $100,000	3.75%

*Interest rates are compounded quarterly

11. Jay and Sybil are purchasing a home. They wish to save money for five years and purchase a house with a value of $195,000 with cash. If they deposit money into an account paying 12% interest, how much do they need to deposit each month in order to make the purchase?

12. Suppose you wish to retire at the age of 65 with $1,000,000 in savings. Determine your monthly payment into an IRA if the APR is 8.5% and you begin making payments at the following ages.

a. 20 years old

b. 30 years old

c. 40 years old

13. Lacy deposits a fixed monthly amount into an annuity account for her child's college fund. She wishes to accumulate a future value of $135,000 in 18 years.

a. Assuming an APR of 6.5%, how much money should Lacy deposit monthly in order to reach her goal?

b. How much of the $135,000 will Lacy ultimately deposit in the account, and how much is interest earned?

14. Assume you wish to borrow $750 for two weeks and the amount of interest you must pay is $17 per $100 borrowed. What is the APR at which you are borrowing money? Round your answer to the nearest whole percent.

15. A payday loan is made for eight weeks, where the amount of interest owed per $100 borrowed is $15. Suppose you borrow $1000 for eight weeks.

a. How much do you owe at the end of eight weeks?

b. What is the APR for this transaction?

16. Ozzie bought a new car and financed $14,950 of the purchase. He financed the car for 36 months with an APR of 5.75%. Determine each of the following.

- **a.** Ozzie's monthly payment
- **b.** Total cost of Ozzie's car
- **c.** Total interest Ozzie pays over the life of the loan

17. Chelsea and Bill are buying a house on a 30-year mortgage. They can pay $1200 per month for a mortgage. If they have an APR of 4.25%, what is the maximum mortgage that they can take out?

18. Amelia decides to purchase a $215,000 house. She wants to finance the entire balance. She has received an APR of 2.75% for a 15-year mortgage.

- **a.** What is Amelia's monthly payment?
- **b.** What is Amelia's total cost if she takes all 15 years to pay off the house?
- **c.** Over the course of the loan, how much interest will Amelia pay?
- **d.** If she changed the term to 30 years instead of 15 years, what would her monthly payment be?
- **e.** With a 30-year mortgage, what is the total cost of the house?
- **f.** With a 30-year mortgage, how much interest will Amelia pay?

19. You want to buy a car and finance $27,450 to do so. You can afford a payment of up to $600 per month. The bank offers three choices for the loan: a four-year loan with an APR of 5.5%, a five-year loan with an APR of 6.5%, and a six-year loan with an APR of 7%. Which option best meets your needs, assuming you want to pay the least amount of interest?

Consider a credit card with a balance of $4875. You wish to pay off the credit card in each scenario. Calculate the following. Round your answer to the nearest cent, if necessary.

a. The amount of a monthly payment within the time frame given

b. The total amount paid over the time period

20. APR of 19.99% paid off within one year

21. APR of 21.5% paid off within two years

22. APR of 29.99% paid off within three years

23. A registered nurse has an annual salary of $57,477, earned $115.27 of interest on their savings account, paid $874 in student loan interest, and contributed $2400 toward a 401(k). What is the nurse's gross income?

24. A dental assistant earns $42,200 per year, paid $860 in student loan interest, and contributed $1200 to a 401(k). What is the dental assistant's adjusted gross income?

25. Keith is self-employed. Based on last year, his projected state and federal taxes for this year will be $19,750.

a. Determine how much he should prepay each quarter to meet the projected taxes by the end of the year.

b. Determine how much he should set aside each month in order to have enough to pay the estimated quarterly taxes. Round your answer to the nearest cent, if necessary.

26. William has a job where he has a take-home salary each month of $3375. If William wants to spend no more than 25% of his income on rent, how much rent can William afford?

27. Michael rents an apartment for $750 per month, pays his car payment of $360 per month, has utilities that cost $330 per month, and spends $476 per month on food and entertainment. Determine Jack's monthly expenses.

28. A recent college graduate takes an entry-level job as an accountant. His yearly salary is $30,500. His employer withholds $4296 in state and federal income taxes and $2328 in FICA taxes throughout the year. He has the following monthly costs: transportation is $340, cell phone bill is $65, student loan payment is $179, HSA contribution is $200, and rent is $750. He is using the average monthly cost for each of the following to gain an idea of other monthly expenses: utilities are $100, home internet is $60, and groceries are $250.

a. Determine the accountant's monthly net pay amount.

b. Determine how much money is left each month for discretionary spending after all necessities are accounted for.