

5.2 EXERCISES

 PRACTICE

Calculate the simple interest for each situation. Round your answer to the nearest cent, if necessary.

1. Determine the interest owed on \$800 for 5 years at a rate of 8.5%.
2. Determine the interest owed on \$5000 for 2 years at a rate of 10%.
3. Determine the interest owed on \$1200 for 30 months at a rate of 19.5%.
4. Determine the interest owed on \$550 for 5 years at a rate of 8.5%.

Use the compound interest formula to find the following for each situation.

- a. Calculate the total amount in the account after the given time period.
 - b. Determine the amount of interest earned for each.
5. $P = \$2500$, $r = 6.5\%$ compounded weekly, $t = 10$ years
 6. $P = \$3500$, $r = 4.5\%$ compounded monthly, $t = 10$ years
 7. $P = \$2500$, $r = 6.5\%$ compounded daily, $t = 10$ years
 8. $P = \$5650$, $r = 8\%$ compounded biannually, $t = 15$ years
 9. $P = \$2500$, $r = 6.5\%$ compounded yearly, $t = 10$ years
 10. $P = \$15,000$, $r = 6\%$ compounded semiannually, $t = 25$ years
 11. $P = \$12,500$, $r = 8\%$ compounded biweekly, $t = 15$ years
 12. $P = \$7300$, $r = 19.9\%$ compounded weekly, $t = 20$ years

An account is compounded monthly for five years with an APR of 9%. For each principal amount, calculate the following.

- a. The total amount paid
 - b. The amount of interest paid
13. \$15,000
 14. \$30,000
 15. \$60,000
 16. \$120,000

 APPLICATIONS

17. You are purchasing a new computer using the store's "90 days same as cash" deal. If the cost of the computer is \$1575 (tax included) with an annual interest rate of 19.99%, how much would you owe on the 91st day if you make no payments during the first 90 days?
18. Assume you wish to borrow \$500 for two weeks and the amount of interest you must pay is \$20 per \$100 borrowed. What is the APR at which you are borrowing money? Round your answer to the nearest hundredth.
19. A couple deposits \$25,000 into an account earning 6% annual interest for 25 years.
 - a. Calculate the future value of the investment if interest is compounded monthly.
 - b. Calculate the future value if the interest on the investment is compounded weekly.
20. Suppose your salary in 2016 was \$65,000. If the annual inflation rate is 4%, what salary do you need to make in 2024 in order for it to keep up with inflation?
21. Suppose that \$15,000 is deposited for eight years at 5% APR.
 - a. Calculate the simple interest earned.
 - b. Calculate the interest earned if interest is compounded weekly.
 - c. Calculate the interest earned if interest is compounded monthly.
22. A payday loan is made for six weeks, where the amount of interest owed per \$100 borrowed is \$20. If you borrow \$500 for six weeks, answer the following questions.
 - a. How much do you owe at the end of six weeks?
 - b. What is the APR for this transaction?
23. Angela deposits \$2500 into an account with an APR of 5.5% for 10 years. Find the amount of interest earned for each of the following situations.
 - a. Interest is compounded annually.
 - b. Interest is compounded monthly.
 - c. Interest is compounded weekly.
 - d. Interest is compounded daily.
 - e. Interest is compounded continuously.
24. David deposits \$4000. Determine the APY for each of the following.
 - a. APR of 5% compounded monthly
 - b. APR of 5% compounded weekly
 - c. APR of 5% compounded daily
 - d. APR of 7.5% compounded monthly
 - e. APR of 7.5% compounded weekly
 - f. APR of 7.5% compounded daily

25. Determine the simple interest earned on \$10,000 after 10 years if the APR is each of the following rates.
- 3%
 - 6%
 - 12%
 - 24%
26. Suppose the First Bank of Lending offers a CD (Certificate of Deposit) that has a 6.45% interest rate and is compounded quarterly for three years. You decide to invest \$5500 into this CD.
- Determine how much money you will have at the end of the three years?
 - Find the APY.
27. The First Bank of Lending lists the following APR for loans. Determine the APY, or effective interest rate for each category.

First Bank of Lending Loan APR	
Loan Amount	APR*
< \$20,000	11.25%
\$20,000–\$99,999	8.99%
≥ \$100,000	5.75%

*interest is compounded quarterly