

# Applications

## ANSWERS

- 2a. \$2,495.91
- b. \$120
- c. \$1,400.80
- d. \$1,215.11
- e. \$1,215.11

1. Go to [www.cengage.com/school/math/financialalgebra](http://www.cengage.com/school/math/financialalgebra) and download a blank check register. Complete all of the necessary information in the check register. [See additional answers.](#)
  - a. The balance on December 10 is \$3,900.50.
  - b. On December 11 check #1223 is written for \$84 to North Shore High School Drama Club.
  - c. On December 12 a paycheck in the amount of \$240.80 is deposited.
  - d. On December 13 a birthday check for \$100 is received from grandparents. The check is deposited that afternoon.
  - e. On December 17 three checks are written while holiday shopping. One is to Best Buy in the amount of \$480.21, one is to Target in the amount of \$140.58, and one is to Aeropostale in the amount of \$215.60.
  - f. Staples sells computers. On December 20 a laptop is purchased for \$1,250. A mistake is made on the first check, and the check must be voided. A correct check for the right amount is then written with the next available check.
  - g. On December 22 a gift is returned to Barnes and Noble. The \$120 amount is deposited into the checking account.
  - h. On December 24, \$300 is withdrawn from an ATM for food at a holiday party. The company that owns the ATM charges \$1.50 fee for the transaction, and the customer's bank charges a \$2.50 fee for the transaction. The fees are taken directly out of the checking account.
  - i. On December 28 a check for \$521 is written to Len's Auto Body Shop to repair a dent in the fender of a car.
  - j. On December 29 a check is written to AMTRAK for \$150.80 to visit a cousin in Washington, D.C. for New Year's Eve.
2. Use the check register from Exercise 1. It is now one month later, and the checking account statement has arrived. Does the account balance? [See margin.](#)

Checking Account Statement

Date	Description	Check #	Amount	Balance
12/12	Deposit		\$240.80	\$4,141.30
12/13	Deposit		\$100.00	\$4,241.30
12/19	W/D	1223	\$ 84.00	\$4,157.30
12/19	W/D	1226	\$215.60	\$3,941.70
12/20	W/D	1225	\$140.58	\$3,801.12
12/21	W/D	1224	\$480.21	\$2,320.91
12/24	ATM Withdrawal		\$300.00	\$3,020.91
12/24	ATM Fee		\$ 1.50	\$3,019.41
12/24	ATM Fee		\$ 2.50	\$3,016.91
01/15	W/D	1229	\$521.00	\$2,495.91
			Ending Balance:	\$2,495.91

- |                               |           |
|-------------------------------|-----------|
| Ending balance from statement | <b>a.</b> |
| Deposits outstanding          | <b>b.</b> |
| Checks outstanding            | <b>c.</b> |
| Revised statement balance     | <b>d.</b> |
| Balance from checkbook        | <b>e.</b> |

## ANSWERS

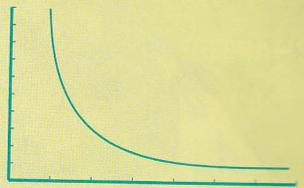
- 7b. All of Matt's money is insured. The FDIC insures up to \$250,000 at one bank, if the accounts are the same type.
9. a. \$0  
 b. \$5,200.00  
 c. \$5,200.00  
 d. \$0.57  
 e. \$5,200.57  
 f. \$5,200.57  
 g. \$700.00  
 h. \$5,900.57  
 i. \$0.65  
 j. \$5,901.22  
 k. \$5,901.22  
 l. \$500.00  
 m. \$5,401.22  
 n. \$0.59  
 p. \$5,401.81

3. Find the simple interest on a \$2,219 principal, deposited for six years at a rate of 5.11%. **\$680.35**
4. Ruth has a savings account at a bank that charges a \$3.50 fee for every month her balance falls below \$1,500. Her account has \$1,722 and then she withdraws \$400. What is her balance in five months if her account balance never reaches \$1,500? **\$1,304.50**
5. Nine months ago Alexa deposited \$7,000 in a three-year CD. She has received \$224.16 in interest. She withdraws \$1,000. This is before the CD matures, so she pays a \$250 penalty. What is her balance after the withdrawal? **\$5,974.16**
6. Ralph deposited \$910 in an account that pays 5.2% simple interest, for  $3\frac{1}{2}$  years.
- How much interest did the account earn? **\$165.62**
  - What is the ending balance? **\$1,075.62**
  - How much interest did the account earn the first year? **\$47.32**
  - How much interest did the account earn the third year? **\$47.32**
7. Matt has two single accounts at Midtown Bank. One account has a balance of \$74,112.09 and the other has a balance of \$77,239.01.
- What is the sum of Matt's balances? **\$151,351.10**
  - Is all of Matt's money insured by the FDIC? Explain. **See margin.**
8. Rhonda deposits \$5,600 in a savings account that pays  $4\frac{1}{2}\%$  interest, compounded semiannually.
- How much interest does the account earn in the first six months? **\$126**
  - What is the ending balance after six months? **\$5,726**
  - How much interest does the account earn in the second six months? **\$128.84**
  - What is the balance after one year? **\$5,854.84**
  - How much interest does the account earn the first year? **\$254.84**
9. Rebecca opened a savings account on March 20, with a \$5,200 deposit. The account pays 3.99% interest, compounded daily. On March 21 she made a \$700 deposit, and on March 22 she made a \$500 withdrawal. Use this information to find the missing amounts. **See margin.**

Date	March 20	March 21	March 22
Opening balance	a.	f.	k.
Deposit	b.	g.	----
Withdrawal	----	----	l.
Principal used to compute interest	c.	h.	m.
Interest	d.	i.	n.
Ending balance	e.	j.	p.

10. Nick deposited \$3,000 in a three-year CD account that pays 4.08% interest, compounded weekly. What is the ending balance? **\$3,390.46**
11. How much more would \$10,000 earn in three years compounded daily at 4.33%, than compounded semiannually at 4.33%? **\$15.69**

3.7-3.8 14-17,  
 Simp/Comp Int



12. Austin deposits \$2,250 into a one-year CD at an interest rate of 5.3%, compounded daily.
- What is the ending balance after the year? **\$2,372.46**
  - How much interest did the account earn during the year? **\$122.46**
  - What is the annual percentage yield? Round to the nearest hundredth of a percent. **5.44%**
13. Find the interest earned on a \$25,000 deposit for  $2\frac{1}{2}$  years at 4.7% interest, compounded continuously. **\$3,117.04**
14. Examine each of the following situations, labeled I, II, and III. Identify which of the three cases below applies. Do not solve the problems.
- future value of a single deposit investment
  - future value of a periodic deposit investment
  - present value of a periodic deposit investment
- \* a. You want to save for a new car that you will buy when you graduate college in 4 years. How much will you be able to afford if you deposit \$1,000 per quarter in an account that compounds interest at a rate of 4.1% quarterly? **future value of a periodic investment**
- b. You deposit \$3,000 into an account that yields 3.22% interest compounded semiannually. How much will you have in the account in 5 years? **future value of a single deposit investment**
- \* c. You want to put a \$40,000 down payment on a store front for a new business that you plan on opening in 5 years. How much should you deposit monthly into an account with an APR of 3.75%, compounded monthly? **present value of a periodic investment**
15. Santos deposited \$1,800 in an account that yields 2.7% interest, compounded semiannually. How much is in the account after 54 months? **\$2,030.89**
16. Stephanie signed up for a direct deposit transfer into her savings account from her checking account. Every month \$150 is withdrawn from her checking account. The interest in this account is at 2.6% compounded monthly. How much will be in the account at the end of  $6\frac{1}{2}$  years? **\$12,731.79**
17. Jazmine needs \$30,000 to pay off a loan at the end of 5 years. How much must she deposit monthly into a savings account that yields 3% interest, compounded monthly? **\$464.06**
18. Use a table of increasing values of  $x$  to find each of the following limits. If no limit exists, say the limit is undefined.
- $\lim_{x \rightarrow \infty} f(x)$  if  $f(x) = \frac{9x - 1}{3x - 5}$  **3**
  - $\lim_{x \rightarrow \infty} g(x)$  if  $g(x) = \frac{3x^2 + 9x}{4x + 1}$  **undefined**
  - $\lim_{x \rightarrow \infty} h(x)$  if  $h(x) = \frac{7x}{x^2 - 41}$  **0**
19. Tom wants to have \$50,000 saved sometime in the future. How much must he deposit every month into an account that pays 2.8% interest, compounded monthly. Use a graphing calculator to graph the present value function. **See margin.**