

# 5-1 Computing the Total Deposit

A **savings account** is a special bank account that allows you to earn interest on your money. A **deposit** is money you give the bank to hold in your savings account. Each time you make a deposit, you fill out a *deposit slip*. The amount of your deposit is added to your account. If you want to get cash back, subtract the amount from the subtotal to find the total deposit amount.

### Example

**Compute the total deposit.**

Yen Yamaguchi has 2 checks for \$289.54 and \$51.39. She also has the following in cash: 2 twenty-dollar bills, 5 ten-dollar bills, 4 five-dollar bills, 14 one-dollar bills, 3 quarters, 8 nickels, and 3 pennies. She opens a savings account by depositing all of her money. What is her total deposit?

1. Total Checks:  $\$289.54 + \$51.39 = \$340.93$
2. Total Currency:  $(2 \times \$20) + (5 \times \$10) + (4 \times \$5) + (14 \times \$1) = \$40 + \$50 + \$20 + \$14 = \$124$
3. Total Coins:  $(3 \times \$0.25) + (8 \times \$0.05) + (3 \times \$0.01) = \$0.75 + \$0.40 + \$0.03 = \$1.18$
4. **Total Deposit = (Currency + Coins + Checks) – Cash Received**  
 $\$124.00 + \$1.18 + \$340.93 - \$0.00 = \mathbf{\$466.11 \text{ total deposit}}$

### Practice

**Find the total deposit.**

1. Checks: \$52.00 and \$150.00. Cash: 2 one-dollar bills, 4 five-dollar bills, 3 ten-dollar bills, 10 quarters, 12 dimes, 15 nickels, and 150 pennies. Less \$50.00 as cash received.
2. Checks: \$147.56 and \$356.98. Cash: 8 one-dollar bills, 14 five-dollar bills, 6 twenty-dollar bills, 31 quarters, 46 dimes, 29 nickels, and 98 pennies. Less \$75.00 as cash received.

**Find the subtotal and the total deposit.**

	<b>Deposits</b>	<b>Subtotal</b>	<b>Cash Received</b>	<b>Total Deposit</b>
3.	\$248.97 122.46 35.78		\$45.50	
4.	63.57 192.49		27.75	

5. **Standardized Test Practice** Marissa Chambers wants to open a savings account, but the bank requires a \$250.00 initial deposit. She breaks her piggy bank, which contains 3 ten-dollar bills, 12 five-dollar bills, 26 one-dollar bills, 52 quarters, 31 dimes, 29 nickels, and 137 pennies. She also has a check from her uncle for \$100.00. If she deposits all her money, how much more will she need to meet the bank's required amount?  
**A. \$208.92    B. \$108.92    C. \$15.08    D. \$115.08**



# Completing a Savings Account Withdrawal Slip

A **withdrawal** is money you take out of your savings account. When you take money out, you fill out a *withdrawal slip*. The amount of a withdrawal is subtracted from your savings account balance.

### Example

Fill out a savings withdrawal slip.

On May 10, 2002, Lani Decker made a withdrawal from her savings account #3958872 in the amount of \$215.50. How should she fill out the withdrawal slip?

<b>FEDERAL BANK</b>		<b>Savings Withdrawal</b>	
<b>Date</b> 1. <i>May 10, 2002</i>	<b>Account Number</b> 2. <i>3958872</i>	3. <i>\$215.50</i>	
NON NEGOTIABLE—TO BE USED ONLY AT COUNTER OF THIS BANK BY DEPOSITOR PERSONALLY			
4. <i>Two hundred fifteen and 50/100 .....</i>			DOLLARS
<b>NAME (SIGNATURE)</b> 5. <i>Lani Decker</i>			
<b>ADDRESS</b> 1324 Fieldcrest Ct., Denver, CO 80211			

1. Fill in the date.
2. Fill in the account number.
3. Fill in the amount withdrawn in numeral format.
4. Fill in the amount withdrawn in word format.
5. Sign the withdrawal slip.

### Practice

Write the following in word form.

1. \$463.39

Write the following as a numeral.

2. Five hundred seventy-nine and 48/100 dollars

Use the withdrawal slip on page 177 to answer questions 3–6.

Anisha Wallenbach withdrew \$128.75 from her savings account.

3. What was the date of her withdrawal?
4. What is her savings account number?
5. Did she write the withdrawal amount correctly in word format?
6. Did she sign the withdrawal slip correctly?
7. **Standardized Test Practice** Paul Liebowitz deposited the following check amounts into his savings account: \$162.49, \$37.64, and \$99.02. He received \$50.00 back in cash. What is his total deposit in word form?
  - A. \$299.15
  - B. Two hundred ninety-nine and 15/100 dollars
  - C. \$249.15
  - D. Two hundred forty-nine and 15/100 dollars



5-3

# Computing the New Balance on Your Savings Account

Just as it does with a checking account, your bank may mail you a savings **account statement**, which shows any deposits, withdrawals, or interest credited to your account since your last statement.

$$\text{New Balance} = \text{Previous Balance} + \text{Interest} + \text{Deposits} - \text{Withdrawals}$$

**Example**

Compute the new balance.

Tiffany Doyle’s previous statement showed a balance of \$521.89. Since then she made deposits of \$421.33 and \$318.78, and she made withdrawals of \$150.00, \$225.00, and \$94.62. She also earned interest in the amount of \$1.16. What is her new balance?

- New Balance = Previous Balance + Interest + Deposits – Withdrawals**  
 $\$521.89 + \$1.16 + (\$421.33 + \$318.78) - (\$150.00 + \$225.00 + \$94.62)$   
 $\$521.89 + \$1.16 + \$740.11 - \$469.62 = \mathbf{\$793.54}$  new balance

**Practice**

Find the new balance.

	<b>Previous Balance</b>	+	<b>Interest</b>	+	<b>Deposits</b>	–	<b>Withdrawals</b>	=	<b>New Balance</b>
1.	\$ 391.00	+	\$1.20	+	\$ 75.00 148.00	–	\$ 215.00	=	
2.	592.75	+	1.52	+	448.68 197.25	–	150.00 99.75	=	
3.	849.57	+	1.77	+	291.46 375.63	–	175.51 384.24	=	
4.	4,151.42	+	7.46	+	578.98 374.57	–	1,020.00 588.65	=	

Use the savings account statement on page 182 to answer questions 5–8.

- What are the total deposits in Rocco’s account for the month of May?
- What are his total withdrawals?
- How much total interest did he earn?
- What is his ending balance on May 31?
- Standardized Test Practice** In August, Justine Markson deposited 2 paychecks, each in the amount of \$338.91, into her savings account. She also made cash withdrawals totaling \$500.00. Interest was posted to her account twice, once for \$0.92 and once for \$1.04. If her beginning balance was \$899.43, what is her ending balance?

A. \$740.30    B. \$1,079.21    C. \$736.28    D. \$723.57

## 5-4

# Calculating Simple Interest

When you put money into a savings account, you're letting the bank use the money. In return, the bank pays you **interest**, or a rental fee. Your **principal** is the amount of money you put into the account, on which interest is earned. The **annual interest rate** is the percent of the principal that you earn as interest based on 1 year. **Simple interest** is the interest paid on the original principal.

**Interest = Principal × Rate × Time** (in years or fractions of a year)

### Example

**Calculate the interest.**

Lulu Rodriguez deposits \$600.00 into her new savings account at Federal Bank. She makes no other deposits or withdrawals. The account pays an annual interest rate of 5.5 percent. Interest is calculated every 4 months. How much simple interest does her money earn?

- Express 4 months as a fraction of 1 year.  
 $4 \text{ months} \div 12 \text{ months (1 year)} = \frac{1}{3} \text{ year}$

- Find the interest.

**Interest = Principal × Rate × Time**

$$\$600.00 \times .055 \times \frac{1}{3} = \$11.00 \text{ interest}$$

### Practice

**Calculate the interest.**

- Principal: \$750.00; annual interest rate: 5 percent. What is the interest after 6 months?
- Principal: \$1,265.00; annual interest rate: 5.75 percent. What is the interest after 1 month?
- Principal: \$2,245.98; annual interest rate: 5.545 percent. What is the interest after 3 months?
- Josh Humphrey deposited \$950.00 into his new savings account. No other deposits or withdrawals were made. After 2 months, interest was computed. How much simple interest did he earn if the bank pays an annual percentage rate of 4.75 percent?

**Use the following information to answer questions 5–7.**

Dyrell Lewis opened a savings account on January 1st at Savings and Loan with a \$625.00 deposit. Interest is calculated on a monthly basis at an annual rate of 5.625 percent.

- What was the interest at the end of the first month?
- If he deposits an additional \$350.00 on February 1st, what is his interest for the second month?
- How much total interest has Lewis's account earned through February?
- Standardized Test Practice** On June 1st, Gabriel Ramirez opened a savings account at First Bank. His initial deposit was \$600.00. The bank pays an annual interest rate of 4.65 percent and calculates interest on the last day of every month. Assuming Ramirez makes no other deposits or withdrawals, what is his balance on June 30th?

A. \$27.90    B. \$2.33    C. \$627.90    D. \$602.33

# 5-5 Calculating Compound Interest

If your bank uses **compound interest** to calculate your balance, it means you earn interest not only on the principal but also on any interest your earned on the principal, or interest on interest. Your new balance is used to calculate your interest for the next interest period and so on.

**Principal + Interest = New Amount**

**Compound Interest = New Amount – Original Principal**

**Example**

**Calculate compound interest.**

Lindsey Robinson deposits \$550.00 into a savings account at Federal Bank where interest is compounded monthly. If the account earns an annual interest rate of 5.5 percent, what is her compound interest after 3 months? What is her new balance after 3 months?

1. Find the interest and new balance for the first month.  
 $Interest = \$550.00 \times .055 \times \frac{1}{12} = \$2.52$   
 $New\ Amount = \$550.00 + \$2.52 = \$552.52$
2. Find the interest and new balance for the second month.  
 $Interest = \$552.52 \times .055 \times \frac{1}{12} = \$2.53$   
 $New\ Amount = \$552.52 + \$2.53 = \$555.05$
3. Find the interest and new balance for the third month.  
 $Interest = \$555.05 \times .055 \times \frac{1}{12} = \$2.54$   
 $New\ Amount = \$555.05 + \$2.54 = \$557.59$  **new balance**
4. Find the amount of compound interest after 3 months.  
 $Compound\ Interest = \$557.59 - \$550.00 = \$7.59$  **interest**

**Practice**

**Find the amount in the account and the interest.**

	<b>Principal</b>	<b>Annual Interest Rate</b>	<b>Interest Period</b>	<b>First Period Interest</b>	<b>Amount</b>	<b>Second Period Interest</b>	<b>Amount</b>
1.	\$ 750.00	5.000%	quarterly	a.	b.	c.	d.
2.	1,585.00	6.500%	semiannually	a.	b.	c.	d.
3.	7,926.50	3.750%	monthly	a.	b.	c.	d.
4.	16,427.82	4.875%	annually	a.	b.	c.	d.

5. **Standardized Test Practice** Marcus Sanderson opened a savings account on January 1st with a \$625.00 deposit. Interest is compounded on a quarterly basis at a rate of 5.7 percent. What is his balance at the end of 1 year?  
**A. \$660.60    B. \$35.60    C. \$661.39    D. \$36.38**

5-6

# Reading a Compound Interest Table

Computing compound interest can be time consuming. To simplify the task, you can use a compound interest table. To do so, you must know the *total number of interest periods* and the *interest rate per period*.

**Example**

**Find the compound interest.**

Tanisha Woods deposits \$1,500.00 into a savings account at Federal Bank for 3 years where interest is compounded quarterly. If the account earns an annual interest rate of 5.5 percent, how much interest does Woods earn during the 3 years?

1. **Periods per Year × Number of Years = Number of Interest Periods**  
 $4 \times 3 = 12$  interest periods
2. **Interest Rate per Period = Annual Rate ÷ Number of Periods per Year**  
 $5.5\% \div 4 = 1.375\%$
3. Using the compound interest table on page 174, find the amount for \$1.00 for 12 periods at 1.375 percent. It is 1.17807.
4. **Amount = Original Principal × Amount of \$1.00**  
 $\$1,500.00 \times 1.17807 = \$1,767.11$
5. **Compound Interest = Amount – Original Principal**  
 $\$1,767.11 - \$1,500.00 = \$267.11$  compound interest

**Practice**

Use the compound interest table on page 174 to answer problems 1–2.

	<b>Principal</b>	<b>Annual Interest Rate</b>	<b>Interest Periods per Year</b>	<b>Total Time</b>	<b>Amount</b>	<b>Compound Interest</b>
1.	\$ 825.00	5.75%	2	6 years	a.	b.
2.	\$3,137.85	6.00%	4	6 years	a.	b.

3. Terrell Jackson opened a savings account by depositing his \$1,050 paycheck. His bank pays 4 percent interest compounded on a quarterly basis. He doesn't make any other deposits or withdrawals. After 3 years, how much interest will he earn?
4. Jaimie Lu deposited \$950.00 into her new savings account. No other deposits or withdrawals were made. The bank pays an annual percentage rate of 5.75 percent compounded semi-annually. After  $2\frac{1}{2}$  years, how much interest will she earn?
5. **Standardized Test Practice** Missy Morengo deposits \$1,000.00 into a savings account that earns 6.25 percent semi-annually. At the end of the first year she deposits another \$1,000.00. How much total interest has she earned at the end of 2 years?  
**A.** \$194.44    **B.** \$130.99    **C.** \$63.48    **D.** \$1,063.48



5-7

# Computing the Interest for Daily Compounding

Some banks offer savings accounts with **daily compounding**, which allows you to earn more interest on your money. When interest is compounded daily, it is computed each day and added to the account balance. Tables are used to calculate the amount of interest. Remember these formulas from the last section:

$$\text{Original Principal} \times \text{Amount of \$1.00} = \text{Amount}$$

$$\text{Amount} - \text{Original Principal} = \text{Compound Interest}$$

### Example

**Compute the interest.**

Kari Perez deposits \$1,500.00 into a savings account at Federal Bank that pays 5.5 percent interest compounded daily. How much interest will Perez earn in 35 days?

- Find the amount of \$1.00 for 35 days using the compound interest table on page 175. It is 1.00528.

- Find the amount.

$$\text{Amount} = \text{Original Principal} \times \text{Amount of \$1.00}$$

$$\$1,500.00 \times 1.00528 = \$1,507.92$$

- Find the compound interest.

$$\text{Compound Interest} = \text{Amount} - \text{Original Principal}$$

$$\$1,507.92 - \$1,500.00 = \$7.92 \text{ compound interest}$$

### Practice

Use the daily compound interest table on page 175 to solve the problems.

	Principal	Number of Days	Amount	Compound Interest
1.	\$14,200	20	a.	b.
2.	755	30	a.	b.
3.	3,127	100	a.	b.

- On June 11, Max Sanders opened a savings account in the amount of \$1,000.00 that earns 5.5 percent interest compounded daily. How much interest will the money earn by July 31?
- Marissa Cho deposited \$950.00 into her new savings account that earns an interest rate of 5.5 percent compound daily. After 30 days, how much interest will she earn?
- Juaquin Ramos opened a savings account on January 1st at Savings and Loan with a \$625.00 deposit. The account earns an interest rate of 5.5 percent compounded daily. What will be the amount in the account on February 10th?
- Standardized Test Practice** On May 1st Jules Imago deposits \$1,000.00 into a savings account that earns 5.5 percent interest compounded daily. On June 1st he deposits another \$1,000.00. What will be the amount in his account on June 30th?  
**A.** \$2,013.28    **B.** \$1,004.52    **C.** \$2,009.04    **D.** \$2,013.58

5-8

# Computing the Future Value of Annuities

When an equal amount of money is deposited into your account at equal periods of time, this is called an **annuity**. There are two types of annuities. An **ordinary annuity** is when equal deposits are made at the *end* of each period. An **annuity due** is when equal deposits are made at the *beginning* of each period. The *future value* of an annuity is the amount of money in the annuity at the *end* of a specific period of time.

$$\text{Amount of Deposit} \times \text{Future Value of \$1.00} = \text{Future Value of an Ordinary Annuity}$$

$$\text{Future Value of an Ordinary Annuity} \times (\$1.00 + \text{Rate per Period}) = \text{Future Value of an Annuity Due}$$

### Example

Find the future value of an annuity.

Teresa Garcia deposits \$300.00 into an ordinary annuity at the end of each quarter in an account earning 6 percent interest compounded quarterly. What is the future value of the account in 3 years?

- Number of Interest Periods =  $4 \times 3 = 12$
- Interest Rate per Period =  $6\% \div 4 = 1.5\%$
- Using the Future Value of an Ordinary Annuity table on page 176, find the future value of \$1.00 for 12 periods at 1.5%. It is \$13.04121.
- Find the future value.

$$\text{Future Value} = \text{Amount of Deposit} \times \text{Future Value of \$1.00}$$

$$300.00 \times \$13.04121 = \$3,912.36$$

### Practice

Use the Future Value of an Ordinary Annuity table on page 176 to solve the problems.

	End of Period Deposit	Compounded	Rate	Years	Rate per Period	Number of Periods	Amount of \$1.00	Future Value of Ordinary Annuity	Future Value of Annuity Due
1.	\$ 500.00	quarterly	6%	3	a.	b.	c.	d.	e.
2.	750.00	semiannually	6%	5	a.	b.	c.	d.	e.
3.	1,445.00	annually	5%	15	a.	b.	c.	d.	e.

- Sam Melendez deposits \$625.00 into an annuity due at the beginning of every quarter for  $2\frac{1}{2}$  years. The account pays an interest rate of 6 percent compounded quarterly. What is the future value of the account after  $2\frac{1}{2}$  years?
- Standardized Test Practice** Jonah Cruthers deposits \$1,000.00 into an annuity due at the beginning of every 6-month period for  $3\frac{1}{2}$  years. The account earns 4 percent semiannually. What is the future value of the annuity due after  $3\frac{1}{2}$  years?  
**A.** \$7,898.29    **B.** \$7,582.97    **C.** \$8,056.26    **D.** \$7,434.28



## 5 Chapter Review

### ***Growing a Money Tree.***

As a child, maybe you remember bringing home a tree sapling on Arbor Day. Its size wasn't much, but if you planted, watered, and cared for it, by now it is probably a towering tree. Your money has the potential to flourish in the same way. Let's see how.

1. Suppose you have the following items: 2 checks in the amounts of \$150.50 and \$300.00; 1 twenty-dollar bill; 3 ten-dollar bills; 6 five-dollar bills; 12 one-dollar bills; 20 quarters; 11 dimes; 5 nickels; and 23 pennies. You receive \$500.00 back in cash. What is your total deposit? If your bank account earns 0 percent interest on balances under \$250.00 and 3 percent on balances over \$250.00, how much interest will you earn?
2. Suppose you take that \$500.00 dollars cash and deposit it into a savings account that earns a simple interest rate of 5.5 percent annually. The interest is calculated quarterly. You make no other deposits or withdrawals. How much interest will you make each quarter? How much interest will you make each year?
3. At the end of 1 year, you decide to move your money into a savings account that pays 6 percent interest compounded semi-annually. What is the interest and new balance after 6 months? What is it after 1 year?
4. Now suppose you deposit just enough cash to give you an even balance of \$600.00. Using the compound interest table on page 174, and assuming the interest rate stays the same as the previous problem, how much interest will your money have earned 5 years from now?
5. You're really serious about saving money, so you take the \$600.00 from the previous problem and deposit it into an ordinary annuity that pays 6 percent interest semiannually. You deposit \$600.00 at the end of each 6-month period. Based on the Future Value of an Ordinary Annuity table on page 176, what is the future value of your annuity in 5 years? How much interest did you earn over that 5-year period?

Can you see how quickly your money tree grows when you compound your interest and make regular deposits into your account?