

# 7-8

# Simple Interest

## MAIN IDEA

Solve problems involving simple interest.

## New Vocabulary

**principal**  
**simple interest**

## Math Online

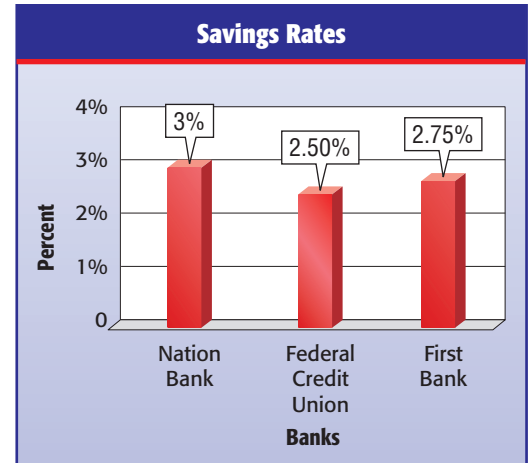
[glencoe.com](http://glencoe.com)

- Extra Examples
- Personal Tutor
- Self-Check Quiz

## ▶ GET READY for the Lesson

**INVESTING** Suni plans to save the \$200 she received for her birthday. The graph shows the average yearly rates at three different banks.

1. Calculate 2.50% of \$200 to find the amount of money Suni can earn in one year at Federal Credit Bank.
2. Calculate 2.75% of \$200 to find the amount of money Suni can earn in one year at First Bank.



**Principal** is the amount of money deposited or borrowed.

**Simple interest** is the amount paid or earned for the use of money.

To find simple interest  $I$ , use the following formula.

$$I = prt$$

Interest ———→  $I$       Annual interest rate, written as a decimal ———→  $r$   
Principal ———→  $p$       Time, expressed in years. ———→  $t$

## EXAMPLES Find Interest Earned

**CHECKING** Arnold has \$580 in a savings account that pays 3% simple interest. How much interest will he earn in each amount of time?

**1** 5 years

$$I = prt \quad \text{Formula for simple interest}$$

$$I = 580 \cdot 0.03 \cdot 5 \quad \text{Replace } p \text{ with } \$580, r \text{ with } 0.03, \text{ and } t \text{ with } 5.$$

$$I = 87 \quad \text{Simplify.}$$

Arnold will earn \$87 in interest in 5 years.

**2** 6 months

$$6 \text{ months} = \frac{6}{12} \text{ or } 0.5 \text{ year} \quad \text{Write the time as years.}$$

$$I = prt \quad \text{Formula for simple interest}$$

$$I = 580 \cdot 0.03 \cdot 0.5 \quad p = \$580, r = 0.03, t = 0.5$$

$$I \approx 8.7 \quad \text{Simplify.}$$

Arnold will earn \$8.70 in interest in 6 months.



## **CHECK** Your Understanding

**Examples 1, 2** Find the simple interest earned to the nearest cent for each principal, interest rate, and time.  
(pp. 379–380)

- |                        |                            |
|------------------------|----------------------------|
| 1. \$640, 3%, 2 years  | 2. \$1,500, 4.25%, 4 years |
| 3. \$580, 2%, 6 months | 4. \$1,200, 3.9%, 8 months |

**Example 3** Find the simple interest paid to the nearest cent for each loan, interest rate, and time.  
(p. 380)

- |                           |                           |
|---------------------------|---------------------------|
| 5. \$4,500, 9%, 3.5 years | 6. \$290, 12.5%, 6 months |
|---------------------------|---------------------------|

**Example 4**  
(p. 380)

7. **FINANCES** The Masters family financed a computer that costs \$1,200. If the interest rate is 19%, how much will the family owe after one month if no payments are made?

## Practice and Problem Solving

### HOMEWORK HELP

For Exercises	See Examples
8–9	1
10–11	2
12–15	3
16–17	4

Find the simple interest earned to the nearest cent for each principal, interest rate, and time.

- |                            |                             |
|----------------------------|-----------------------------|
| 8. \$1,050, 4.6%, 2 years  | 9. \$250, 2.85%, 3 years    |
| 10. \$500, 3.75%, 4 months | 11. \$3,000, 5.5%, 9 months |

Find the simple interest paid to the nearest cent for each loan, interest rate, and time.

- |                             |                             |
|-----------------------------|-----------------------------|
| 12. \$1,000, 7%, 2 years    | 13. \$725, 6.25%, 1 year    |
| 14. \$2,700, 8.2%, 3 months | 15. \$175.80, 12%, 8 months |

16. **CREDIT CARDS** Leon charged \$75 at an interest rate of 12.5%. How much will Leon have to pay after one month if he makes no payments?

17. **TRAVEL** A family charged \$1,345 in travel expenses. If no payments are made, how much will they owe after one month if the interest rate is 7.25%?

**BANKING** For Exercises 18 and 19, use the table.

18. What is the simple interest earned on \$900 for 9 months?
19. Find the simple interest earned on \$2,500 for 18 months.

Home Savings and Loan	
Time	Rate
6 months	2.4%
9 months	2.9%
12 months	3.0%
18 months	3.1%

**INVESTING** For Exercises 20 and 21, use the following information.

Ramon has \$4,200 to invest for college.

20. If Ramon invests \$4,200 for 3 years and earns \$630, what was the simple interest rate?
21. Ramon’s goal is to have \$5,000 after 4 years. Is this possible if he invests with a rate of return of 6%? Explain.

**EXTRA PRACTICE**

See pages 687, 711.

**H.O.T. Problems**

22. **OPEN ENDED** Suppose you earn 3% on a \$1,200 deposit for 5 years. Explain how the simple interest is affected if the rate is increased by 1%. What happens if the time is increased by 1 year?
23. **CHALLENGE** Mrs. Antil deposits \$800 in a savings account that earns 3.2% interest annually. At the end of the year, the interest is added to the principal or original amount. She keeps her money in this account for three years without withdrawing any money. Find the total in her account after each year for three years.
24. **WRITING IN MATH** List the steps you would use to find the simple interest on a \$500 loan at 6% interest rate for 18 months. Then find the simple interest.

**TEST PRACTICE**

25. Jada invests \$590 in a money market account. Her account pays 7.2% simple interest. If she does not add or withdraw any money again, how much interest will Jada's account earn after 4 years of simple interest?
- A \$75.80  
B \$158.67  
C \$169.92  
D \$220.67
26. Mr. Sprockett borrows \$3,500 from his bank to buy a used car. The loan has a 7.4% annual simple interest rate. If it takes Mr. Sprockett two years to pay back the loan, what is the total amount he will be paying?
- F \$3,012  
G \$4,018  
H \$4,550  
J \$3,598

**Spiral Review**

27. Find the total cost of a \$19.99 DVD if the tax rate is 7%. (Lesson 7-7)

Find each percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an increase or decrease. (Lesson 7-6)

28. 35 birds to 45 birds      29. 60 inches to 38 inches      30. \$2.75 to \$1.80

Divide. Write in simplest form. (Lesson 5-7)

31.  $\frac{3}{5} \div \frac{1}{2}$       32.  $\frac{4}{7} \div \frac{5}{8}$       33.  $2\frac{2}{3} \div 1\frac{1}{4}$

**Problem Solving in Art****Real-World Unit Project**

**It's Golden!** It's time to complete your project. Use the information and data you have gathered about the Golden Ratio to prepare a Power Point presentation. Be sure to include your reports and calculations in your presentation.

**Math Online** Unit Project at [glencoe.com](http://glencoe.com)