5.6 Lesson

Key Vocabulary
interest, *p. 430*
principal, *p. 430*
simple interest, *p. 430*

Interest is money paid or earned for using or lending money. The **principal** is the amount of money borrowed or deposited.

Key Idea

Simple Interest

Words **Simple interest** is money paid or earned only on the principal.

Algebra

$I = Prt$

- I: Simple interest
- P: Principal
- r: Annual interest rate (in decimal form)
- t: Time (in years)

Reading
An interest rate per year is also called an annual interest rate.

Example 1 Finding a Balance

2 MTR MAKE A CONNECTION
Write a formula that you can use to find the total balance B of an account. Explain your reasoning.

You deposit $500 in a savings account. The account earns 3% simple interest per year. What is the balance after 3 years?

To find the balance, calculate the interest and add it to the principal.

$I = Prt$ Write the simple interest formula.

$= 500(0.03)(3)$ Substitute 500 for P, 0.03 for r, and 3 for t.

$= 45$ Multiply.

The interest earned is $45 after 3 years.

▶ So, the balance is $500 + $45 = $545 after 3 years.

Try It

1. What is the balance of the account after 9 months?

Example 2 Finding an Annual Interest Rate

You deposit $1000 in an account. The account earns $100 simple interest in 4 years. What is the annual interest rate?

$I = Prt$	Write the simple interest formula.
$100 = 1000(r)(4)$	Substitute 100 for I, 1000 for P, and 4 for t.
$100 = 4000r$	Simplify.
$0.025 = r$	Divide each side by 4000.

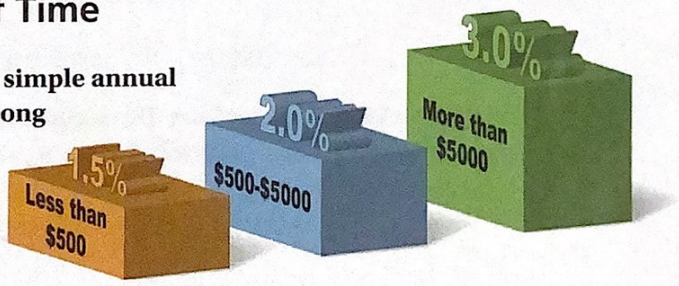
▶ So, the annual interest rate of the account is 0.025, or 2.5%.

Try It

2. You deposit $350 in an account. The account earns $17.50 simple interest in 2.5 years. What is the annual interest rate?

Example 3 Finding an Amount of Time

A bank offers three kinds of savings accounts. The simple annual interest rate is determined by the principal. How long does it take an account with a principal of $800 to earn $100 in interest?



The diagram shows that the interest rate for a principal of $800 is 2%.

$I = Prt$	Write the simple interest formula.
$100 = 800(0.02)(t)$	Substitute 100 for I, 800 for P, and 0.02 for r.
$100 = 16t$	Simplify.
$6.25 = t$	Divide each side by 16.

▶ So, the account earns $100 in interest in 6.25 years.

Try It

3. In Example 3, how long does it take an account with a principal of $10,000 to earn $750 in interest?

GO DIGITAL