

# Lesson 6.7:

# Simple Interest

## Essential Question

How can you find the amount of simple interest earned on a savings account? How can you find the amount of interest owed on a loan?

## 6.7 Notes

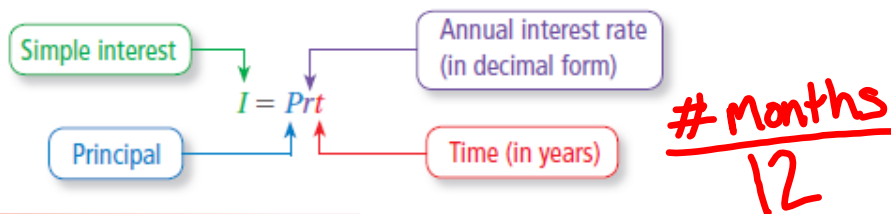
Get out your spiral notebook and calculator too!

## Key Idea

### Simple Interest

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

### Algebra



I and P are in dollars. P is the original amount.

$$\text{Balance} = I + P$$

### Example 1:

You put \$500 in a savings account. The account earns 3% simple interest per year.

a. What is the interest earned after 3 years?

I

$$I = Prt$$

$$I = \$500 \cdot 0.03 \cdot 3 = \boxed{\$45}$$

b. What is the balance after 3 years?

total

$$\$500 + \$45 = \boxed{\$545}$$

**Example 2:**

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

$$I = Prt$$

$$\$100 = \$1000 \cdot r \cdot 4$$

$$\begin{array}{r} \$100 = \$4000r \\ \div \$4000 \quad \div \$4000 \\ \hline 0.025 = r \end{array}$$

$$0.025 = 2.5\%$$

1. You put \$500 in a savings account. The account earns 3% simple interest per year. What is the balance of the account after 9 months?

$$I = Prt$$

$$I = \$500 \cdot 0.03 \cdot 0.75$$

$$I = \$11.25$$

$$\text{Balance} = P + I = \$511.25$$

9 months =  $\frac{9}{12}$  of a year  
 $\rightarrow \frac{3}{4} = 0.75$

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

$$I = Prt$$

$$\$17.50 = \$350 \cdot r \cdot 2.5$$

$$\begin{array}{r} \$17.50 = \$875r \\ \div \$875 \quad \div \$875 \\ \hline 0.02 = r \end{array}$$

$$0.02 = 2\%$$

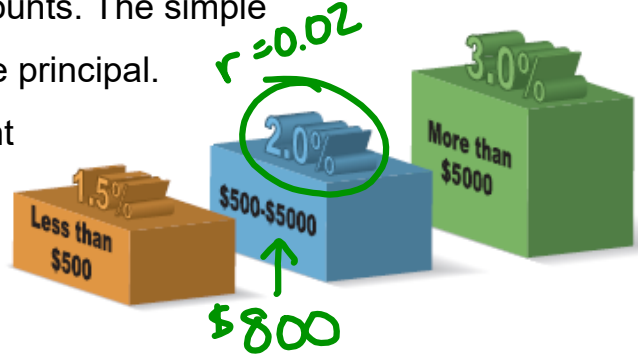
**Example 3:**

A bank offers three savings accounts. The simple interest rate is determined by the principal.

How long does it take an account

with a principal of \$800 to earn

\$100 in interest?



$$I = Prt$$

$$100 = 800 \cdot 0.02t$$

$$100 = 16t$$

$$\div 16 \div 16$$

$$t = 6.25$$

6 years and ? months

0.25 of 12 months

$$0.25 \cdot 12 = 3$$

**6 yrs + 3 mths**

**Example 4:**  $\rightarrow P$  (original loan)

You borrow \$600 to buy a violin. The simple interest rate is 15%. You pay off the loan after 5 years. How much do you pay for the loan?

$$I = Prt$$

$$I = 600 \cdot 0.15 \cdot 5$$

$$I = 450$$

$$P + I = \$600 + \$450$$

**\$1050**

$r = 0.15$   
total  
 $P + I$

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

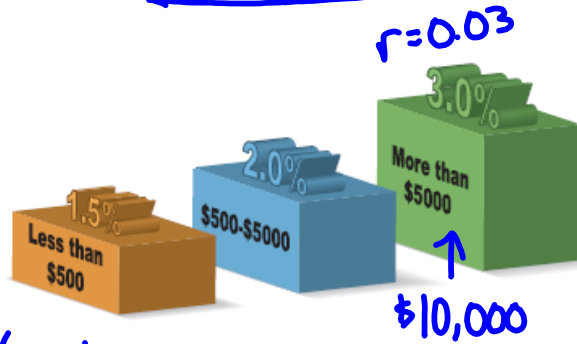
$$I = Prt$$

$$750 = 10000 \cdot 0.03 \cdot t$$

$$750 = 300t$$

$$\begin{array}{r} 750 \div 300 \\ \hline 2.5 = t \end{array}$$

2 yrs & 6 mths



4. In Example 4, you pay off the loan after 2 years. How much money do you save? (You borrow \$600 to buy a violin. The simple interest rate is 15%.)

$$I = Prt$$

$$I = 600 \cdot 0.15 \cdot 2$$

$$I = 180$$

$$\begin{array}{r} \text{31} \\ \text{\$450} \\ - \text{\$180} \\ \hline \text{Save \$270} \end{array}$$