

Name _____

Date _____

Mr. Tallman

Do Now

Cindy makes \$9,000 per month plus a 10% commission on everything she sells. If Cindy sold \$30,000 worth of items in January, what was her total salary for January?

Sales: 30,000

Com = Sales (r)

9000 + 3000

Com: X

$X = 30,000 (.1)$

\$12,000

r: 10

$X = \$3000$

Lesson #42 - Simple Interest

When you deposit money in a savings account, your money usually earns interest.

When you **borrow** money, you must pay back the original amount of the loan plus the interest.

Simple Interest is a fixed Percent of the Principal (the original amount deposited or borrowed).

Simple Interest Formula

$$\text{Interest} = (\text{Principal})(\text{Rate})(\text{Time})$$

Amount saved
or borrowed

Percent

of years

$$I = (P)(R)(T)$$

Example 1) Bubba needs to take out a loan for \$2,450. The company that he received a loan from has an interest rate of 7%. If Bubba pays off his loan in 2.5 years, how much interest was on the loan?

Interest: X

$$I = PRT$$

$$I = (2450)(.07)(2.5)$$

P: 2450

R: .07

T: 2.5

\$428.75

Example 2) Sally borrows \$400 on a 4-year loan. She is charged 5% simple interest per year. How much interest is she charged for 4 years? What is the total amount she has to pay back?

$$I = x$$

$$P = 400$$

$$R = 5\%$$

$$T = 4$$

$$I = PRT$$

$$x = (400)(.05)(4)$$

$$x = \$80$$

$$400 + 80 = \$480$$

Example 3) Mrs. Williams wants to know how long it will take an investment of \$450 to earn \$200 in interest if the yearly interest rate is 6.5%, paid at the end of each year.

$$I = 200$$

$$P = 450$$

$$R = 6.5$$

$$T = x$$

$$I = PRT$$

$$200 = (450)(.065)(x)$$

$$\frac{200}{2925} = \frac{2925x}{2925}$$

$$x = 63 \text{ years}$$

$$x = 63 \text{ years}$$

Example 4) Joe's savings account was \$25,800 in 2000. By 2015, he earned 16,800 in interest. What was the interest rate?

$$I = 16800$$

$$P = 25800$$

$$R = x$$

$$T = 15$$

$$I = PRT$$

$$16800 = (25800)(x)(15)$$

$$\frac{16800}{387000} = \frac{387000x}{387000}$$

$$x = 0.043 \rightarrow 4.3\%$$

Now, You Try!

5) Julia took out a \$30,000 loan to purchase a car. She has to pay a simple interest rate of 6% each year. She borrows the money for 5 years.

a) How much interest will she pay?

$$I = x$$

$$P = 30000$$

$$R = 6\%$$

$$T = 5$$

$$I = PRT$$

$$x = 30000(.06)(5)$$

$$x = \$9000$$

b) How much will she have to pay back to the bank?

$$30,000 + 9,000 = \$39,000$$

6) Adrianna gets a loan for \$4,000 to buy a car. It will take her 3 years to pay off the loan. She will be charged 6.5% simple interest. How much interest will she pay over the 3 years?

$$I = 4000x$$

$$P = 4000$$

$$R = 6.5\%$$

$$T = 3$$

~~$$I = PRT$$

$$4000 = x(0.065)(3)$$

$$4000 = 0.195x$$

$$\frac{4000}{0.195} = \frac{0.195x}{0.195}$$~~

$$I = PRT$$

$$x = 4000(0.065)(3)$$

$$x = \$780$$

7) Suppose you invested some money at 8% simple interest for five years. If you received \$500 in interest, how much money did you invest?

$$I = 500$$

$$P = x$$

$$R = 8$$

$$T = 5$$

$$I = PRT$$

$$500 = x(0.08)(5)$$

$$\frac{500}{0.4} = \frac{0.4x}{0.4}$$

$$x = \$1250$$

Challenge Problems

8) Erica's parents gave her \$500 for her high school graduation. She put the money into a savings account that earned 7.5% annual interest. She left the money in the account for nine months before she withdrew it. How much interest did the account earn if interest is paid yearly?

9 months = 0.75 years

$$I = x$$

$$P = 500$$

$$R = 7.5$$

$$T = 0.75$$

$$I = PRT$$

$$x = (500)(0.075)(0.75)$$

$$x = \$28.13$$

9) Lehana and Marty each opened a savings account with a deposit of \$100.

- Lehana earned 2.5% simple interest per year.
- Marty earned 2% simple interest per year.
- Neither of them made additional deposits or withdrawals.

How much more did Lehana receive in interest than Marty after three years?

- A \$0.50
- B \$1.50
- C \$5.00
- D \$15.00

Lehana

$$I = PRT$$

$$I = 100(0.025)(3)$$

$$I = \$7.50$$

Marty

$$I = PRT$$

$$I = 100(0.02)(3)$$

$$I = \$6$$

Difference

$$7.50 - 6$$

$$\$1.50$$

