

# Simple Interest

**Simple Interest** is one method of computing interest. Using this method, interest is computed from the (original) principal alone no matter how much money has accrued so far.

Three things are needed to calculate *simple interest*:

- 1) Principal = the amount put into the bank or the amount borrowed from the bank
- 2) Rate = the percent (convert to a decimal)
- 3) Time = how many years the money is in the savings account at the bank or how many years it will take you to pay back the loan.

The formula for calculating Simple Interest is:

$$\text{Simple Interest} = \text{Principal} \times \text{Rate} \times \text{Time (in years)} \\ I = PRT$$

The tricky part about calculating the interest is the time aspect. The time must be in years. If the time is given in months just simply divide your months by 12

## Example 1:

Ray put **\$1,000** into a savings account. The interest on the account is **3.5%**. He wants to put the money away for **18 months**.

Using simple interest method, how much will Ray have at the end of that time period?

$$\text{Principal} = \$1000 \quad \text{Rate} = 3.5\% = 0.035 \quad \text{Time} = 18 \text{ months} = 1.5 \text{ years}$$

$$I = \text{Principal} \times \text{Rate} \times \text{Time (in years)}$$

$$I = (1000)(0.035)(1.5) = \$52.50$$

*Adding the simple interest on to the principal, Ray will have \$1,052.50 at the end of that time period.*

## Example 2:

Beth owes **\$38,000** in student loans. The interest rate on her loans is **8.25%**. She will be paying these loans off for **20 years**.

Using simple interest method, how much will Beth pay altogether?

$$\text{Principal} = \$38,000 \quad \text{Rate} = 8.25\% = 0.0825 \quad \text{Time} = 20 \text{ years}$$

$$I = \text{Principal} \times \text{Rate} \times \text{Time (in years)}$$

$$I = (38,000)(0.0825)(20) = \$62,700$$

*Adding the simple interest on to the principal, Beth will have paid \$100,700 at the end of that time period.*

## Simple Interest (continued)

### Example 3:

A student purchases a computer by obtaining a simple interest loan. The computer costs **\$1,500**, and the interest rate on the loan is **12%**. If the loan is to be paid back in weekly installments over **2** years, calculate:

- The amount of interest paid over the 2 years,
- The total amount to be paid back,
- The weekly payment amount.
- Using simple interest method:

$$\text{Principal} = \$1,500 \quad \text{Rate} = 12\% = 0.12 \quad \text{Time} = 2 \text{ years}$$

$$I = \text{Principal} \times \text{Rate} \times \text{Time (in years)} \\ I = (1,500)(0.12)(2) = \$360$$

- Adding the simple interest on to the principal, the student will pay a total of \$1,860 at the end of that time period.
- To determine how many weekly payments are required, simply multiply the 2 by 52 weeks. This means there will be 104 weekly payments. To determine the weekly payment amount, divide the total cost of \$1,860 by 104. The weekly payment amount is \$17.88.

### Example 4:

To buy a computer, Tom borrowed **\$3000** at **9%** simple interest calculated yearly. If he will be making monthly payments for **four** years, calculate:

- The amount of interest paid over the 4 years,
- The total amount to be paid back,
- The monthly payment amount.
- Using simple interest method:

$$\text{Principal} = \$3,000 \quad \text{Rate} = 9\% = 0.09 \quad \text{Time} = 4 \text{ years}$$

$$I = \text{Principal} \times \text{Rate} \times \text{Time (in years)} \\ I = (3,000)(0.09)(4) = \$1,080$$

- Adding the simple interest on to the principal, the student will pay a total of \$4,080 at the end of that time period.
- To determine how many weekly payments are required, simply multiply the 4 by 12 months. This means there will be 48 monthly payments. To determine the monthly payment amount, divide the total cost of \$4,080 by 48. The monthly payment amount is \$85.00.