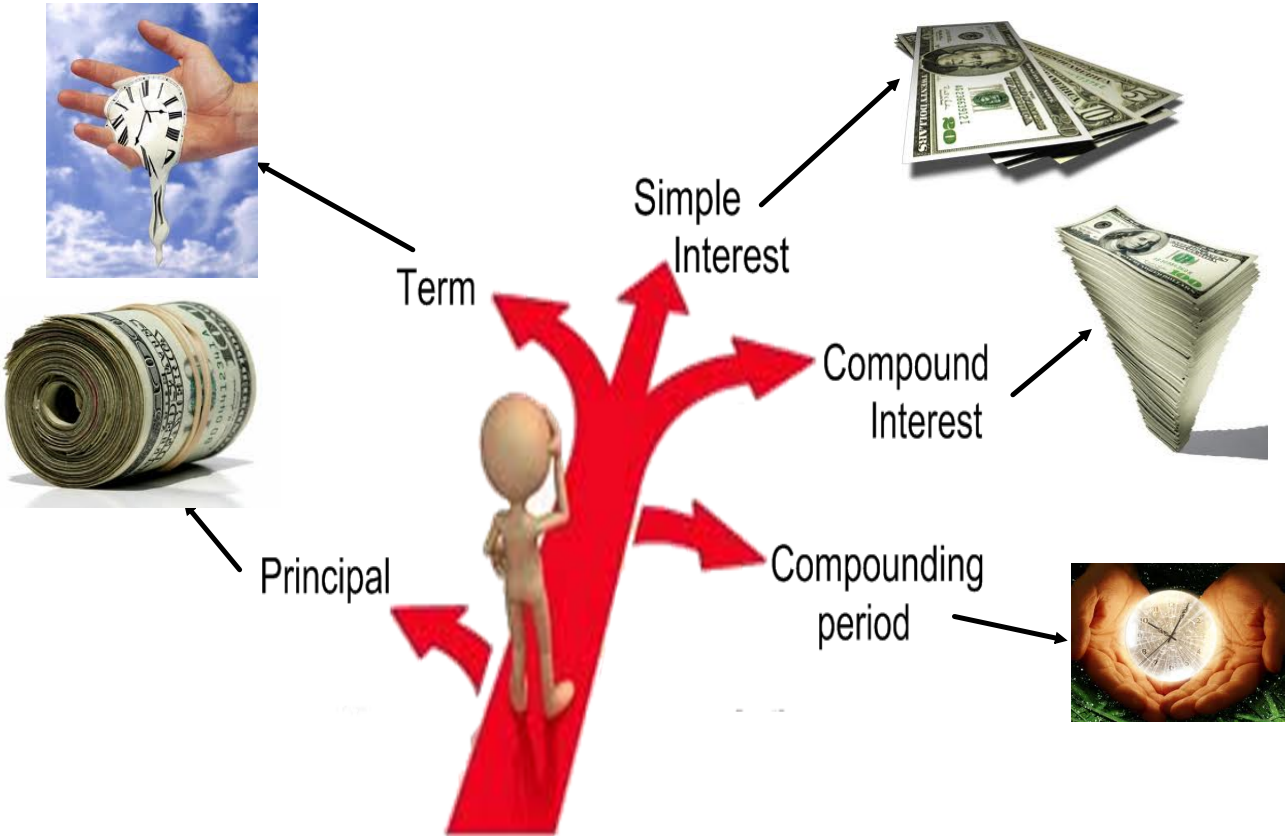


Simple and Compound Interest





Simple Interest

$$I = Prt$$

- Interest calculated as a percentage of the principal.

I = Interest

P = Principal

r = rate (as a decimal)

t = time in years

Compound Interest

- The interest paid on the principal plus interest

Terminology Tango

of compounds per year

annually

semi-annually

quarterly

monthly

semi-monthly

bi-weekly

weekly

daily

SIMPLE interest

$$\underline{\text{Interest}} = \underline{\text{Principal}} \times \underline{\text{rate}} \times \underline{\text{time}}$$

$$I = Prt$$

- Principal is the amount you invest or borrow.
- Interest rate expressed as a decimal.
Ex: 7.1% → 0.071
- Time in years

Gordon wants to invest \$2000.00. His bank offers an investment option that earns simple interest at a rate of 1.75% per year. How much interest will he earn in 1 year?

Given:

$$P = 2000.00$$

$$r = 1.75\% \\ = 0.0175$$

$$t = 1 \text{ yr}$$

$$I = ?$$

$$I = \underline{P} \underline{r} \underline{t}$$

$$I = (2000)(0.0175)(1)$$

$$I = \$35.00$$

Gordon wants to invest \$2000.00. His bank offers an investment option that earns simple interest at a rate of 1.75% per year. How much interest will he earn if he invests for 3 years?

Given:

$$P = \$2000.00$$

$$r = 1.75\%$$

$$r = 0.0175$$

$$t = 3 \text{ yrs}$$

$$I = ?$$

$$I = \underline{P} \underline{r} \underline{t}$$

$$I = (2000)(0.0175)(3)$$

$$I = \$105.00$$

Betty-Ann's bank offers a simple interest rate of 4% per annum. How much interest would Betty-Ann earn on her investment of \$4000 after 8 months?



Given:

$$P = \$4000.00$$

$$r = 4\%$$

$$r = 0.04$$

$$t = \frac{8}{12}$$

$$I = \underline{P} \underline{r} \underline{t}$$

$$I = (4000)(0.04)\left(\frac{8}{12}\right)$$

$$I = \frac{1280}{12}$$

$$I = \$106.67$$

The interest earned on a deposit is \$25 with an interest rate is 6% per annum. If the money was invested for 2 years, what is the principal?

Given:

$$I = \$25.00$$

$$r = 6\%$$

$$r = 0.06$$

$$t = 2 \text{ yrs}$$

$$P = ?$$

$$I = Prt$$

$$25 = P(0.06)(2)$$

$$\frac{25}{0.12} = \frac{P(0.12)}{0.12} \quad \text{or } 0.12P$$

$$\boxed{\$208.33 = P}$$

Homework

Simple Interest $I = Prt$

1. Jeff wants to invest \$5000.00. His bank offers an investment option that earns simple interest at a rate of 1.5% per year. How much would he make in interest? $I = (5000)(0.015)(1)$
 $I = \$75$
2. Ava's bank offers a simple interest rate of 5% per annum. How much interest would Ava earn on her investment of \$7000.00 after 3 months? $I = (7000)(0.05)(0.25)$
 $I = \$87.50$
3. The interest earned on a deposit is \$75.00 with an interest rate of 5% per annum. If the money was invested for 3 years, what is the principal? $\$75 = P(0.05)(3)$
 $75 = 0.15P$
 $\$500 = P$
4. Holly wants to invest \$3800.00. Her bank offers an investment option that earns simple interest at a rate of 2.5% per year. How much would he make in interest? $I = (3800)(0.025)(1)$
 $I = \$95$
5. Will's bank offers a simple interest rate of 2.75% per annum. How much interest would Will earn on his investment of 10,000.00 after 9 months? $I = (10000)(0.0275)(0.75)$
 $I = \$206.25$
6. The interest earned on a deposit is \$125.00 with an interest rate of 3.5% per annum. If the money was invested for 5 years, what is the principal? $125 = P(0.035)(5)$
 $125 = 0.175P$
 $\$714.29 = P$
7. The interest earned on a deposit is \$250 with an interest rate of 8% per annum. If the money was invested for 5 years, what is the principal?
 $250 = P(0.08)(5)$
 $250 = 0.4P$
 $\$625 = P$