A – Future Amount; Future Value; Accumulated Amount

P – Principal; Present Value

I – Interest; Amount of Interest Earned or Paid

R – Amount of Periodic Payment; Amount of Periodic Deposit; Amount of Recurring Periodic Payment or Deposit

r – Interest Rate

r_A – Effective Rate; Effective Annual Yield; Annual Percentage Yield (APY)

t – Amount of Time, in years; Duration, in years, for Investment/Loan

n – Number of times Interest is compounded each year; Frequency with which Interest is compounded each year; Number of times Interest is paid/charged each year; Frequency with which Interest is paid/charged each year.

- **Future Value**

$$A = P + I$$

- **Principal**

$$P = A - I$$

- **Interest**

$$I = A - P$$

- **Simple Interest**

$$I = Prt$$

- **Future Value for Simple Interest**

$$A = P(1 + rt)$$

- **Present Value for Simple Interest**

$$P = \frac{A}{1 + rt}$$

- **Effective Rate; Effective Annual Yield; Annual Percentage Yield (APY)**

$$r_A = \left(1 + \frac{r}{n}\right)^n - 1$$

- **Future Value for Continuous Compounding**

$$A = Pe^{rt}$$

- **Future Value for Compound Interest**

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

- **Present Value for Compound Interest**

$$P = \frac{A}{\left(1 + \frac{r}{n}\right)^{nt}}$$

- **Future Value for an Annuity (a.k.a. Savings Plan)**

$$A = \frac{R\left[\left(1 + \frac{r}{n}\right)^{nt} - 1\right]}{\left(\frac{r}{n}\right)}$$

- **Periodic Deposit for an Annuity**

$$R = \frac{A\left(\frac{r}{n}\right)}{\left[\left(1 + \frac{r}{n}\right)^{nt} - 1\right]}$$

- **Periodic Payment for Amortization (a.k.a. Periodic Payment for a Loan)**

$$R = \frac{P\left(\frac{r}{n}\right)}{\left[1 - \left(1 + \frac{r}{n}\right)^{-nt}\right]}$$

- **Principal for Amortization**

$$P = \frac{R\left[1 - \left(1 + \frac{r}{n}\right)^{-nt}\right]}{\left(\frac{r}{n}\right)}$$