Finance

\[ F = \text{Future or Maturity Value} \]

\[ P = \text{Present Value} \]

\[ r = \text{Interest Rate} \]

\[ n = \text{Compounding Period} \]

\[ t = \text{Time} \]

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Simple Interest
(Less than one Year)

Interest

\[ I = Prn \]

\[ I = F - P \]

Future Value

\[ F = P(1 + rt) \]

Present Value

\[ P = \frac{F}{1 + rt} \]

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Compound Interest

Future Value

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

Present Value

\[ P = F\left(1 + \frac{r}{n}\right)^{-nt} \]
Annuities (Regular Payments or Deposits)

\[ F = \text{Future or Maturity Value} \]
\[ P = \text{Present Value} \]
\[ R = \text{Periodic Payments or Deposits} \]
\[ r = \text{Interest Rate} \]
\[ n = \text{Compounding Period} \]
\[ t = \text{Time} \]

**Ordinary Annuity** (Sinking Fund)

Future Value
\[ F = R \left( \frac{\left(1 + \frac{r}{n}\right)^{nt} - 1}{\frac{r}{n}} \right) \]

Payment at the end of each period

Loan Payments

\[ P = \text{Loan Amount} \quad R = \text{Periodic Payment} \]

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

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