**Simple Interest:**

\[ I = Prt \]

\[ A = P + Prt \quad \text{or} \quad A = P(1 + rt) \]

**Compound Interest:**

\[ A = P(1 + i)^n \quad \text{or} \quad A = P \left( 1 + \frac{r}{m} \right)^{mt} \]

\[ A = Pe^{rt} \]

**Annual Percentage Yield:**

\[ \text{APY} = \left( 1 + \frac{r}{m} \right)^m - 1 \]

\[ \text{APY} = e^r - 1 \]

---

**Annuities:**

\[ FV = PMT \cdot \frac{(1+i)^n-1}{i} \]

\[ PMT = FV \cdot \frac{i}{(1+i)^n-1} \quad \text{(Sinking fund payment)} \]

\[ PV = PMT \cdot \frac{1-(1+i)^{-n}}{i} \]

\[ PMT = PV \cdot \frac{i}{1-(1+i)^{-n}} \quad \text{(amortization formula)} \]

**KEY:**

- \( I = \text{Interest} \)
- \( P = \text{Principal} \)
- \( r = \text{rate ( as a decimal )} \)
- \( t = \text{time in years} \)
- \( A = \text{Amount or future value} \)
- \( m = \text{number of compounding periods per year} \)
- \( i = \text{rate per compounding period (r/m)} \)
- \( n = \text{total # of compounding periods ( m \cdot t )} \)
- \( \text{e} = 2.7183... \) (there is a calculator key for it)

- \( FV = \text{future value} \)
- \( PMT = \text{periodic payment} \)
- \( PV = \text{present value} \)
- \( r = \text{rate ( as a decimal )} \)
- \( t = \text{time in years} \)
- \( m = \text{number of compounding periods per year} \)
- \( i = \text{rate per period (r/m)} \)
- \( n = \# \text{ of payments or periods ( m \cdot t )} \)