

Financial Formulae

Simple Interest:

$$I = Prt$$

$$FV = P(1 + rt) = P + I$$

Compound Interest:

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

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

Annuity (ordinary):

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

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

Amortized Loan:

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

$$\text{unpaid balance} = P \left(1 + \left(\frac{r}{n}\right)\right)^{(nT)} - pymt \left[\frac{\left(\left(1 + \left(\frac{r}{n}\right)\right)^{(nT)} - 1 \right)}{\left(\frac{r}{n}\right)} \right]$$

NOTE : *T here is the number of years that have been paid.*