Compound Interest

1. Let Principal = P, Rate = R% per annum, Time = *n* years.
2. *When interest is compound Annually:*

$$\text{Amount} = P\left(1 + \frac{R}{100}\right)^{n}$$

3. *When interest is compounded Half-yearly:*

$$\text{Amount} = P\left[1 + \frac{(R/2)}{100}\right]^{2n}$$

4. *When interest is compounded Quarterly:*

$$\text{Amount} = P\left[1 + \frac{(R/4)}{100}\right]^{4n}$$

5. *When interest is compounded Annually but time is in fraction, say* $3\frac{2}{5}$ *years.*

$$\text{Amount} = P\left(1 + \frac{R}{100}\right)^{3}\times\left(1 + \frac{\frac{2}{5}R}{100}\right)$$

6. *When Rates are different for different years*, say R_1%, R_2%, R_3% for 1^{st}, 2^{nd} and 3^{rd} year respectively.

$$\text{Then, Amount} = P\left(1 + \frac{R_1}{100}\right)\left(1 + \frac{R_2}{100}\right)\left(1 + \frac{R_3}{100}\right).$$

7. *Present worth of Rs. x due n years hence is given by:*

$$\text{Present Worth} = \frac{x}{\left(1 + \frac{R}{100}\right)^{n}}.$$