Compound Interest - Important Formulas

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

4. When interest is compounded Quarterly:
   \[ \text{Amount} = P \left[1 + \left(\frac{R}{4}\right)^\frac{4n}{100}\right] \]

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 1st, 2nd and 3rd 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:
   \[ \text{Present Worth} = \frac{x}{\left(1 + \frac{R}{100}\right)} \]