Interest

$S = P(1 + i \times n)$ ⇝ Simple interest

Ordinary simple interest $= P \times i \times \frac{d}{360}$

Exact simple interest $= P \times i \times \frac{d}{365}$

$S = P(1+i)^n$ ⇝ compound interest.

Effective Annual Interest Rate:

$$S = P\left(1 + \frac{i}{m}\right)^{n \times m}$$

$$i_{eff} = \left(1 + \frac{i}{m}\right)^m - 1$$

$S = P \times e^{i \times n}$ ⇝ continuous interest

$$i_{eff} = e^i - 1$$

$$S = P(1 + i_{eff})^n$$

Future value (FV), Present Value (PV)

$$FV = PV(1+i)^n$$

S ← FV = PV(1 + i)^n ; PV → P

$$PV = \frac{FV}{(1+i)^n}$$

Annuity: Payments Made at The Beginning of Each Period

$$FV = C \cdot \left[\frac{(1+i)^n - 1}{i}\right] \times (1+i)$$

Annuity: Payments Made at The End of Each Period (ordinary annuity)

$$FV = C \cdot \left[\frac{(1+i)^n - 1}{i}\right]$$