

**Exponential Growth and Decay Formulas**

$$y = a(1 + r)^t$$

$$y = a(1 - r)^t$$

**Interest Formulas**

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

$$A = Pe^{rt}$$

**Annuity Formulas**

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

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

**Loan Formula**

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