$y = b^x \leftrightarrow x = \log_b y$

Change of Base formula: $\log_b a = \frac{\log a}{\log b}$

Product Rule: $\log_b m \cdot n = \log_b m + \log_b n$

Quotient Rule: $\log_b \frac{m}{n} = \log_b m - \log_b n$

Power Rule: $\log_b x^a = a \log_b x$

Basic exponential model: $y = a \cdot b^x$

Half-life: $y = I \cdot \left(\frac{1}{2}\right)^{\frac{t}{\lambda}}$

Percent Increase: $y = I \cdot (1 + r)^t$ Percent Decrease: $y = I \cdot (1 - r)^t$

<u>Interest</u>

Simple: $\$ = P \cdot (1 + r)^t$ Compound: $\$ = P \cdot \left(1 + \frac{r}{k}\right)^{kt}$ Continuous: $\$ = P \cdot e^{rt}$

Newton's Law of Cooling: $T = T_m + (T_o - T_m)e^{-kt}$

Logistic Growth: $f(x) = \frac{L}{1+e^{-k(x-x_0)}}$