Compound Interest: If a principal $P$ is invested at an interest rate $r$ for a period of $t$ years, then the amount $A(t)$ of the investment is given by:

$$A(t) = P \left(1 + \frac{r}{n}\right)^{nt} \quad \text{if compounded } n \text{ times per year}$$

$$A(t) = Pe^{rt} \quad \text{if compounded continuously}.$$ 

Change of Base Formula: Let $a$ and $b$ be two positive numbers with $a, b \neq 1$. If $x > 0$, then:

$$\log_b x = \frac{\log_a x}{\log_a b}$$