Exponent Summary

$A(t) = A_0(1+r)^t$

$A_0 = initial\ amount$

$r = growth\ rate\ in\ a\ decimal$

$t = time\ in\ years$

$(1+r) = growth\ factor$

$decay\ if\ -1 < r < 0\ making\ (1+r)\ a\ number\ between\ 0\ and\ 1$

$growth\ if\ r > 1\ making\ (1+r)\ a\ number\ larger\ than\ 1$

Laws of Exponents

same base

$b^x \cdot b^y = b^{x+y}$

$\frac{b^x}{b^y} = b^{x-y}$

$If\ b \neq 0,1\ or\ -1,\ then\ b^x = b^y\ iff\ x = y$

same exponents

$(ab)^x = a^x b^x$

$\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$

$If\ x \neq 0,\ a > 0\ and\ b > 0\ then\ a^x = b^x\ iff\ a = b$

Power to a power

$(b^x)^y = b^{(xy)}$

$b^0 = 1\ (b \neq 0)$

$b^{-n} = \frac{1}{b^n}\ (b \neq 0)$