

Unit 2 – Exponentials & Logs Formula Cheat Sheet

Exponential Growth or Decay $f(x) = Ca^x$	Growth Rate $r = a - 1$ OR $r = \frac{f(x+1) - f(x)}{f(x)}$	Average Rate of Change $f(x+1) - f(x)$
Continuous Growth or Decay $f(x) = Ce^{rx}$ OR $A(t) = Pe^{rt}$	Instantaneous Growth Rate $r = \ln(a)$	Compound Interest $A(t) = P \left(1 + \frac{r}{n}\right)^{nt}$
Logistic Growth $f(x) = \frac{C}{1 + b * a^{-x}}$	Common Logarithm $\log(x) = \log_{10}(x)$ Natural Logarithm $\ln(x) = \log_e(x)$	Change of Base $\log_b(M) = \frac{\log(M)}{\log(b)}$
Log Properties: Product Rule $\log_a(A * B) = \log_a(A) + \log_a(B)$	Log Properties: Quotient Rule $\log_a\left(\frac{A}{B}\right) = \log_a(A) - \log_a(B)$	Log Properties: Power Rule $\log_a(A^C) = C * \log_a(A)$