Math 201

Section 6.4 Graphs and Applications Involving Logarithmic and Exponential Functions

Properties of e^x	Properties of $\ln(x)$
$e^x > 0$ for all $x \in (-\infty, \infty)$	$\ln(x) > 0$ if $x > 1$
	$\ln(x) < 0$ if $0 < x < 1$
	$\ln(x) = 0$ if $x = 1$
e^x is increasing on $(-\infty, \infty)$	$\ln(x)$ is increasing on $(0, \infty)$
e^x is concave up on $(-\infty, \infty)$	$\ln(x)$ is concave down on $(0, \infty)$

Logistic Curves

The logistic growth curve arises from the equation

$$y = \frac{L}{1 + Ae^{-kt}}$$

where y is the population at time t ($t \geq 0$), L is the carrying capacity, and L, A, and k are positive constants.