



Lesson Objectives (p. 531):

Vocabulary

- Natural logarithm (p. 531): _____

- Natural logarithmic function (p. 532): _____

Key Concepts

- Natural Logarithmic Function (p. 532):

- Get Organized** Fill in each box to compare and contrast the two kinds of logarithms. Give general forms and examples. Simplify, if appropriate. (p. 533).

	COMMON LOGARITHMS	NATURAL LOGARITHMS
BASE		
LOGARITHMIC FORM		
EXPONENTIAL FORM		
$\log_b 1$		
$\log_b b$		
$\log_b b^x$		
$b^{\log_b x}$		


Lesson Objectives (p. 531):

use the number e to write and graph exponential functions representing real-world situations; solve equations and problems involving e or natural logarithms.

Vocabulary

- Natural logarithm (p. 531): a logarithm with a base of e , abbreviated as \ln .
- Natural logarithmic function (p. 532): the function $f(x) = \ln x$, which is the inverse of the natural exponential function $f(x) = e^x$.

Key Concepts

- Natural Logarithmic Function (p. 532):

The natural logarithmic function $f(x) = \ln x$ is the inverse of the natural exponential function $f(x) = e^x$.

- Get Organized** Fill in each box to compare and contrast the two kinds of logarithms. Give general forms and examples. Simplify, if appropriate. (p. 533).

	COMMON LOGARITHMS	NATURAL LOGARITHMS
BASE	10	$e = 2.718 \dots$
LOGARITHMIC FORM	$\log x = y$ $\log 100 = 2$	$\ln x = y$ $\ln 100 \approx 4.6$
EXPONENTIAL FORM	$x = 10^y$ $100 = 10^2$	$x = e^y$ $100 \approx e^{4.6}$
$\log_b 1$	$\log 1 = 0$	$\ln 1 = 0$
$\log_b b$	$\log 10 = 1$	$\ln e = 1$
$\log_b b^x$	$\log 10^x = x$	$\ln e^x = x$
$b^{\log_b x}$	$10^{\log x} = x$	$e^{\ln x} = x$