

Logarithms

College Algebra

Main Ideas

- The common logarithm of x is the exponent to which you must raise 10 to get x .
- The natural logarithm of x is the exponent to which you must raise $e=2.71828\dots$ to get x .
- There are several applications of logarithms.
- We will use logarithms later in the course to solve exponential functions.

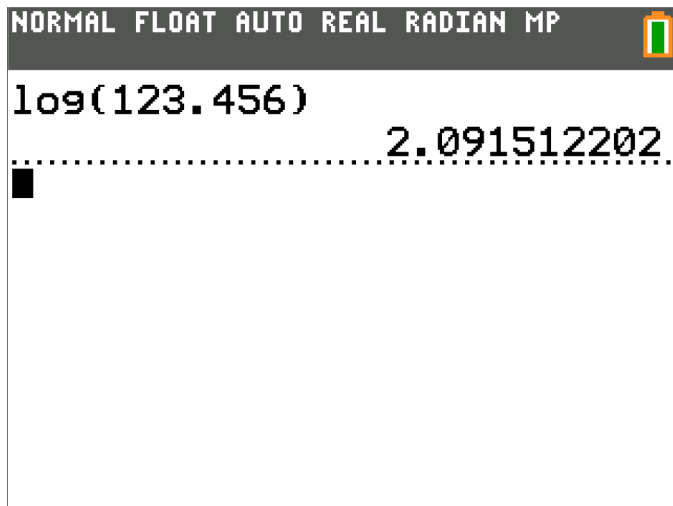
Common Logarithms

Definition – Common Logarithm

For a positive number x , define the common logarithm of x to be $y=\log x$ to be the number where $10^y = x$.

How To – Approximate the Common Logarithm of a Number on a TI Graphing Calculator

Calculate the common logarithm of a number by pressing the LOG button followed by the number. Close the parentheses and press ENTER.



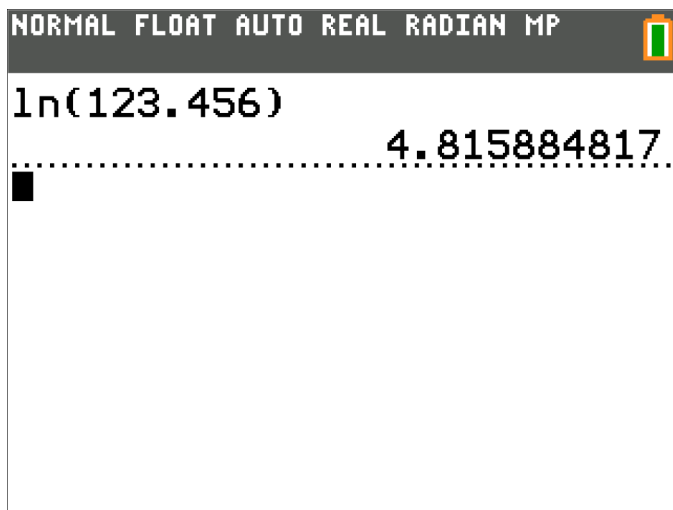
Natural Logarithms

Definition – Natural Logarithm

The number $e = 2.71828\dots$ is a constant like π in mathematics. For a positive number x , define the natural logarithm of x to be $y = \ln x$ to be the number where $e^y = x$.

How To – Approximate the Common Logarithm of a Number on a TI Graphing Calculator

Calculate the natural logarithm of a number by pressing the LN button followed by the number. Close the parentheses and press ENTER.



Note

The constant e is a number that is useful in Calculus. That is the reason it appears in so many science classes.