

Math 150, Section 4.3

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Purpose of this section

In this section we learn some very useful properties of logarithmic functions. These properties are used to simplify/solve expressions/equations involving logarithms.

Laws of Logarithms

- ▶ $\log_a(AB) = \log_a(A) + \log_a(B)$
- ▶ $\log_a\left(\frac{A}{B}\right) = \log_a(A) - \log_a(B)$
- ▶ $\log_a(A^C) = C \log_a(A)$

The problems in this section uses these formulas to combine or expand expressions involving logarithms.

Change of Base Formula

The change of base formula for logarithms is

$$\log_b x = \frac{\log_a x}{\log_a b}$$

This formula is not used in problems explicitly but when you are using your calculator to find logarithms to an arbitrary base, you will need to use this change of base formula.