




8.3 Evaluating Logarithms

A Specific Logarithms <p>The logarithm to the base 10 is called <i>decimal</i> or <i>common</i> logarithm. We use the shortcut:</p> $\log_{10} x = \log x$ <p>The logarithm to the base e is called the <i>natural</i> logarithm. We use the shortcut:</p> $\log_e x = \ln x$	B Evaluating Logarithms <p>Use the <i>exponential-logarithmic conversion</i> to evaluate a logarithm.</p> $y = b^x \Leftrightarrow x = \log_b y$
<p>Ex 1. Use the exponential-logarithmic conversion to evaluate each logarithm:</p> <p>a) $\log 10$</p> <p>b) $\log 1$</p> <p>c) $\log 0.01$</p> <p>d) $\ln e^{-3/2}$</p> <p>e) $\log \sqrt{10}$</p> <p>f) $\ln \sqrt[3]{e^5}$</p>	<p>Ex 2. Use the exponential-logarithmic conversion to evaluate each logarithm:</p> <p>a) $\log_2 128$</p> <p>b) $\log_{1/e} \sqrt{e}$</p> <p>c) $\log_5 625$</p> <p>d) $\ln \frac{1}{\sqrt[3]{e}}$</p> <p>e) $\log_{1/2} \sqrt[3]{1024}$</p> <p>f) $\log_{\sqrt{2}} \sqrt[5]{0.25}$</p>
<p>C Technology</p> <p>Most scientific calculators have the  key to compute the common (decimal) logarithm and the  key to compute the natural logarithm.</p> <p>Some scientific calculators have the  key to compute logarithms to any base. If not, change the base according to:</p> $\log_b x = \frac{\log x}{\log b} = \frac{\ln x}{\ln b}$	<p>Ex 3. Use technology to evaluate:</p> <p>a) $\ln 7$</p> <p>b) $\log 5$</p> <p>c) $\log_2 3$</p>

Reading: Nelson Textbook, Pages 459-465

Homework: Nelson Textbook, Page 466: #4, 5, 6, 9, 10, 12, 17, 19, 20, 21