The following properties of logarithms may be deduced from the properties of exponents:

Properties of Logarithms

Note that $\log x$ and $\ln x$ are not defined when x is negative or 0.

1. $\log(AB) = \log A + \log B$	1. $\ln(AB) = \ln A + \ln B$
2. $\log\left(\frac{A}{B}\right) = \log A - \log B$	2. $\ln\left(\frac{A}{B}\right) = \ln A - \ln B$
3. $\log(A^p) = p \log A$	3. $\ln(A^p) = p \ln A$
4. $\log(10^x) = x$	4. $\ln e^x = x$
5. $10^{\log x} = x$	5. $e^{\ln x} = x$

In addition, $\log 1 = 0$ because $10^0 = 1$, and $\ln 1 = 0$ because $e^0 = 1$.