$\log_b x = y \leftrightarrow b^y = x$

$\log_b(x \cdot y) = \log_b(x) + \log_b(y)$

$\log_b\left(\frac{x}{y}\right) = \log_b(x) - \log_b(y)$

$\log_b(x^n) = n \log_b(x)$

$\log_e(x) = \ln(x)$

$\log(x) = \log_{10}(x)$

Cancellation Laws (Equations)

$\log_b(b^x) = x$ for all real numbers

$b^{\log_b x} = x \quad x > 0$

$\sqrt{x} = x^{\frac{1}{2}}$

$\sqrt{10^2} = (10^2)^{\frac{1}{2}}$