Description The properties of logarithms. The following properties apply for any values of M, N and b for which each logarithm is defined, which is $M, N > 0$ and $0 < b \neq 1$. Remember, in order for a logarithm to be defined, the argument of the logarithm must be positive and the base of the logarithm must be positive and not equal to 1.

Logarithm Rules

Product Rule	$\log_b(MN)$	$=$	$\log_b(M) + \log_b(N)$
Quotient Rule	$\log_b(\frac{M}{N})$	$=$	$\log_b(M) - \log_b(N)$
Power Rule	$\log_b(M^p)$	$=$	$p \log_b(M)$
Change of Base Rule	$\log_b(M)$	$=$	$\frac{\log_b(M)}{\log_a(b)}$