Laws of logarithms

(often called log laws) are rules that describe how to handle logarithms.

These rules are as follows:

Product rule: $\qquad ln(a.b) = ln(a) + ln(b)$

Quotient rule: $\qquad ln\left(\dfrac{a}{b}\right) = ln(a) - ln(b)$

Power rule: $\qquad ln(a^b) = b \cdot ln(a)$

Application of power rule: $\qquad ln(y^x) = xln(y)$

Logarithm of 1: $\qquad ln(1) = 0$

Logarithm of e: $\qquad ln(e) = 1$, **because** $e^1 = 1$ **or** $e^x = x$