

# EXPONENTS & LOGS

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

## EXPONENT LAWS

$$x^m \cdot x^n = x^{m+n}$$

$$\frac{x^m}{x^n} = x^{m-n}$$

$$(x^m)^n = x^{mn}$$

$$x^0 = 1$$

$$x^1 = x$$

$$x^{-m} = \frac{1}{x^m}$$

$$\sqrt[m]{x} = x^{\frac{1}{m}}$$

## LOG LAWS

$$\log_b(mn) = \log_b m + \log_b n$$

$$\log_b\left(\frac{m}{n}\right) = \log_b m - \log_b n$$

$$\log_b(m^k) = k \cdot \log_b(m)$$

$$\log_b(1) = 0$$

$$\log_b(b) = 1$$

$$\log_b\left(\frac{1}{b^k}\right) = -k$$

\*A log function is the inverse of an exponential function\*