Properties of Exponents

$$x^a x^b = x^{a+b}$$

$$\frac{x^a}{x^b} = x^{a-b}$$

$$x^n y^n = (xy)^n$$

$$\frac{x^n}{y^n} = \left(\frac{x}{y}\right)^n$$

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

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

$$x^0 = 1$$

Properties of Logarithms

$$\text{Log}(xy) = \text{Log}(x) + \text{Log}(y)$$

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

$$\text{Log}(x^n) = n\,\text{Log}(x)$$

$$\text{Log}_x(x) = 1$$

$$\text{Log}_x(x^n) = n$$

$$x^{\text{Log}_x(n)} = n$$

$$\text{Log}_b 1 = 0$$