

Laws of Exponents

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

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

$$\rightarrow b^0 = 1$$

$$\rightarrow \frac{1}{b^x} = b^{-x}$$

$$(b^x)^y = b^{xy}$$

$$(bc)^x = b^x c^x$$

$$\left(\frac{b}{c}\right)^x = \frac{b^x}{c^x}$$

$$b^2 b^3 = b \cdot b \cdot b \cdot b \cdot b = b^5$$

$$\frac{b^4}{b^2} = \frac{\cancel{b} \cdot \cancel{b} \cdot b \cdot b}{\cancel{b} \cdot \cancel{b}} = b^2$$

$$\frac{b^5}{b^5} = b^{5-5} = b^0 = 1$$

$$\frac{1}{b^x} = \frac{b^0}{b^x} = b^{0-x} = b^{-x}$$

$$(b^2)^3 = b^2 \cdot b^2 \cdot b^2 = b^{2+2+2} = b^6$$

$$(bc)^3 = bc \cdot bc \cdot bc = b \cdot b \cdot b \cdot c \cdot c \cdot c = b^3 c^3$$

$$\begin{aligned} \left(\frac{b}{c}\right)^3 &= \frac{b}{c} \cdot \frac{b}{c} \cdot \frac{b}{c} \\ &= \frac{b \cdot b \cdot b}{c \cdot c \cdot c} \\ &= \frac{b^3}{c^3} \end{aligned}$$