

# Power to a Power 9/13

● ● ● Let's explore.....

$$\begin{aligned} (2^3)^2 &= 2^{3 \cdot 2} = 2^6 \\ 2^3 \cdot 2^3 &= 2^6 \end{aligned}$$

$$\begin{aligned} (x^2 y^3 z^1)^5 &= x^{5 \cdot 2} y^{5 \cdot 3} z^{5 \cdot 1} \\ &= x^{10} y^{15} z^5 \end{aligned}$$

$$\begin{aligned} (x^{-3} y^2 x)^6 &= x^{-3} \cdot x^1 \cdot (x^{-2} y^2)^6 \\ &= x^{-12} y^{12} \\ &= \frac{y^{12}}{x^{12}} \end{aligned}$$

$$(3x^3y^4)^2$$

$$3^2x^6y^8$$

$$\boxed{9x^6y^8}$$

$$(2x^4y^{10})^2$$

$$4x^8y^{20}$$

$$(5x^{-2}y^3)^2$$
$$\frac{25y^6}{x^4}$$

$$(3x^2)^3 \cdot xy^4$$
$$27x^6 \cdot xy^4$$
$$27x^7y^4$$

