

Algebra Notes / Exponent Rules

$$x^2 \cdot x^4 = x \cdot x \cdot x \cdot x \cdot x \cdot x = x^6$$

x^2 x^4

multiply same base $\rightarrow$ add exponents

$$x^{10} \cdot x^{15} = x^{25}$$

$$(x^2)^3 = (x^2)(x^2)(x^2)$$

$x \cdot x$ $x \cdot x$ $x \cdot x$ $= x^6$

$2 \cdot 3 = 6$
power rule $\rightarrow$ multiply exponents

$$(x^2)^4 = x^{28}$$

$$\frac{x^5}{x^2} = \frac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x} = x^3$$

$5 - 2 = 3$

divide same bases $\rightarrow$ subtract exponents

$$\frac{x^{15}}{x^6} = x^9$$

$15 - 6 = 9$

$$\frac{x^3}{x^7} = \frac{x \cdot x \cdot x}{x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x} = \frac{1}{x^4}$$

$3 - 7 = -4$ $x^{-4} = \frac{1}{x^4}$

Negative exponent $\rightarrow$ move it to the bottom

$$\frac{x^{12}}{x^{19}} = \frac{1}{x^7}$$

$12 - 19 = -7$ $x^{-7} = \frac{1}{x^7}$

$$x^0 = 1$$

$$\frac{x^5}{x^5} = \frac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x \cdot x \cdot x} = 1$$

$5 - 5 = 0$ $x^0 = 1$

Anything to 0 power = 1

$$(x^2 y^{15} z^{20})^0 = 1$$

$3^3 = 27$
 $3^2 = 9$
 $3^1 = 3$
 $3^0 = 1$
 $3^{-1} = \frac{1}{3}$

$\div 3$
 $\div 3$
 $\div 3$
 $\div 3$

