

Properties of Exponents

Product Rule

: add exponents ; $X^a \cdot X^b = X^{a+b}$

Ex. 1 $\cdot h^4 \cdot h^6 = h^{4+6} = h^{10} \checkmark$

$\cdot (-2a^1b^3)(7a^4b) = -14a^5b^4 \checkmark$

Power Rule

: multiply the exponents ; $(X^a)^b = X^{a \cdot b}$

Ex 2: $\cdot (X^2)^4 = X^{2 \cdot 4} = X^8 \checkmark$

$\cdot (4b^3)^2 = 4^2 b^{3 \cdot 2} = 16b^6 \checkmark$

Quotient Rule

: subtract the exponents ; $\frac{X^a}{X^b} = X^{a-b}$

Ex 3. $\cdot \frac{X^5}{X^2} = X^{5-2} = X^3 \checkmark$

$\cdot \frac{12X^7}{4X^3} = 3X^{7-3} = 3X^4 \checkmark$

Negative

Exponent Rule

: move to the other side ; $X^{-a} = \frac{1}{X^a}$

Ex. 4 $\textcircled{1} X^{-4} = \frac{1}{X^4}$; $\textcircled{2} 2X^{-5} = \frac{2}{X^5}$

$\textcircled{3} \frac{20X^2}{5X^6} = 4X^{-4} = \frac{4}{X^4}$

Zero
Exponent
rule

: Anything to the zero power is equal
to 1

$$x^0 = 1$$

Ex 5

$$\cdot 2x^0 = 2 \cdot 1 = 2$$

$$\cdot 1,823^0 = 1$$