PROPERTIES OF EXPONENTS

Frequency:

I. Multiplying with the Same Base

When multiplying with the same base, add the exponents:

$x^a x^b \Leftrightarrow$ _____

$x^3x^4 \rightarrow$ (_____)•(_____) → _____

II. Dividing with the Same Base

When dividing with the same base, subtract the exponents:

$\frac{x^a}{x^b} \Leftrightarrow$ _____ (x cannot equal 0)

$\frac{x^5}{x^3} = \frac{x \cdot x \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}{\cancel{x} \cdot \cancel{x} \cdot \cancel{x}} =$ _____ (because there are 2 more x's in the numerator)

$\frac{x^3}{x^5} = \frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x}}{x \cdot x \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}} =$ _____(because there are 2 more x's in the denominator)

III. Base and a Power to a Power

When you have a base and power to a power, multiply the exponents:

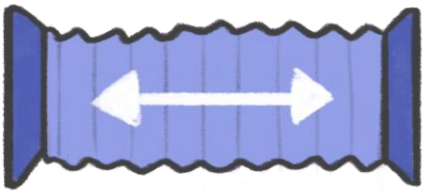
$(x^a)^b \Leftrightarrow$ _____

$(x^3)^4 \rightarrow$ (_____)•(_____)•(_____)•(_____) → _____

IV. Distributing Exponents

$(xy)^a =$ _____

$\left(\frac{x}{y}\right)^a =$ _____ (y cannot equal 0)



V. The Zero Power

$x^0 =$ _____ (x cannot equal 0)