

Properties of Exponents

$$A^0 = 1$$

undefined)

For A = any number except 0. (0 is

ex: $45^0 = 1$

ex: $(x^3yz)^0 = 1$

ex: $3x^2y^0 = 3x^2(1)$ or $3x^2$

$$A^m \times A^n = A^{m+n}$$

To multiply like bases, keep the base and add the exponents

ex: $2^2 \times 2^3 = 2^{2+3} = 2^5$ or 32

ex: $W^3Y \times W^4Y^2 = W^7Y^3$

$$A^m/A^n = A^{m-n}$$

To divide like bases, keep the base and subtract the exponents

ex: $5^5/5^3 = 5^{5-3} = 5^2$ or 25

ex: $X/X^4 = X^{1-4} = X^{-3} = 1/X^3$

or $X/X^4 = 1/X^{4-1} = 1/X^3$

$$(A^m)^n = A^{mn}$$

To raise a power to a power, multiply the exponents

ex: $(R^3)^4 = R^{12}$

ex: $(3A^2BC^3)^2 = 3^2A^4B^2C^6 = 9A^4B^2C^6$

$$A^{-n} = 1/A^n$$

To remove a negative exponent take the reciprocal of the value

$$1/A^{-n} = A^n$$

ex: $5^{-3} = 1/5^3$ or $1/125$

ex: $X^{-1}/3^{-2}Y = 3^2/XY = 9/XY$