

The Exponent Laws

Product Rule

When we **multiply** powers with the same base we _____ the exponents.

$$x^a \times x^b =$$

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Quotient Rule

When we **divide** powers with the same base we _____ the exponents.

$$\frac{x^a}{x^b} =$$

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Power of a Power Rule

When we have a power raised to an exponent we _____ the exponents.

$$(x^a)^b =$$

$(xy)^n =$			
$\left(\frac{x}{y}\right)^n =$			

Zero Exponents

Anything (except 0) raised to the exponent 0 is _____.

$$x^0 = \quad , x \neq 0$$

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Negative Exponents

A base raised to a negative exponent is equivalent to the _____ of the same base raised to the opposite (positive) exponent.

$$y^{-n} =$$

$\frac{1}{y^{-n}} =$			
$\left(\frac{x}{y}\right)^{-n} =$			

Big Questions

Simplify, using the exponent laws, then evaluate the expression below.

$$\left(\frac{(2^{-14})(2^{-5})^4}{(2^3)(2^{-5} \times 2^{-4})^4} \right)^{-3}$$

Evaluate the expression below for $x = -1, y = 2, n = -2$.

$$\left(\frac{x^n y^3}{(xy)^{-2n}} \right)^n$$