Powers of a Power (Raising a Power to a Power)

Name _____

Date _____ Period _____

Powers of a Power

$$(x^m)^n = x^{m \cdot n}$$

When raising a power to a power, multiply the exponents

$$(x^2)^4$$

Zero Exponent Property

$$a^0 = 1$$

Negative Exponent Property

$$a^{-m} = \frac{1}{a^m} \qquad \frac{1}{a^{-m}} = a^m$$

Product of Powers

$$x^m \cdot x^n = x^{m+n}$$

When multiplying like bases, add the exponents

Quotient of Powers

$$\frac{x^m}{x^n} = x^{m-n}$$

When dividing like bases, subtract the exponents

$$(x^m)^n = x^{m \cdot n}$$

When raising a power to a power, multiply the exponents

$(a^2)^6$

$(2^3)^2$

$(x^2)^3 \cdot x^2$

$(2^{-2})^2 \cdot 2^4$

$$(x^m)^n = x^{m \cdot n}$$

When raising a power to a power, multiply the exponents

$(y^2)^3(y^4)^2$

$(a^2)^{-2}(a^4)^{-2}$

$$(x^m)^n = x^{m \cdot n}$$

When raising a power to a power, multiply the exponents

$$\frac{(x^2)^3}{(x^4)^2}$$

$$\frac{(a^{-1})^4}{(a^{-2})^3}$$

Powers of a Power

$$(x^m)^n = x^{m \cdot n}$$

When raising a power to a power, multiply the exponents