Name : _____

Laws of Exponents

Name	The Rule	Example
Product of Powers	$x^m \cdot x^n = x^{m+n}$	$x^3 \cdot x^2 = x^5$
Quotient of Powers	$\frac{x^m}{x^n} = x^{m-n}$ or $\frac{1}{x^{n-m}}$	$\frac{x^7}{x^5} = x^2$
		$\frac{x^7}{x^5} = \frac{1}{x^{-2}}$ or x^2
Power of a Power	$(x^m)^n = x^{mn}$	$(x^4)^6 = x^{24}$
Power of a Product	$(xy)^m = x^m \cdot y^m$	$(xy)^5 = x^5 \cdot y^5$
Power of a Quotient	$\left(\frac{x}{y}\right)^m = \frac{x^m}{y^m}$	$\left(\frac{2}{3}\right)^2 = \frac{2^2}{3^2} = \frac{4}{9}$
Negative Exponent	$x^{-m} = \frac{1}{x^m}$	$x^{-7} = \frac{1}{x^7}$
		$\frac{1}{x^{-5}} = x^5$
Identity Exponent	$x^1 = x$	$8^1 = 8$
Zero Exponent	$x^0 = 1\ (x \neq 0)$	$2^0 = 1$