

Properties of Exponents:

Property:	Algebraic Expression:	Example:
Product of Powers Property	$a^m \cdot a^n = a^{m+n}$	$3^2 \cdot 3^5 = 3^{2+5} = 3^7$
Power of a Power Property	$(a^m)^n = a^{m \cdot n}$	$(3^2)^5 = 3^{2 \cdot 5} = 3^{10}$
Power of a Product Property	$(a \cdot b)^m = a^m \cdot b^m$	$(3 \cdot 2)^5 = 3^5 \cdot 2^5$
Negative Exponent Property	$a^{-n} = \frac{1}{a^n}$	$3^{-2} = \frac{1}{3^2}$ $\frac{1}{3^{-2}} = \frac{3^2}{1} = 3^2$
Zero Exponent Property	$a^0 = 1$	$3^0 = 1$ $\pi^0 = 1$
Quotient of Powers Property	$\frac{a^m}{a^n} = a^{m-n}$	$\frac{3^5}{3^2} = 3^{5-2} = 3^3$
Power of a Quotient Property	$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$	$\left(\frac{3}{2}\right)^5 = \frac{3^5}{2^5}$