

Laws of exponents

Rule	Formula	Example
Product	$a^m \times a^n = a^{(m+n)}$	$2^3 \times 2^4 = 2^7$
Quotient	$a^m \div a^n = a^{(m-n)}$	$5^6 \div 5^4 = 5^2$
Power of a power	$(a^m)^n = a^{(mn)}$	$(3^2)^3 = 3^6$
Power of a product	$(ab)^n = a^n b^n$	$(2 \cdot 5)^3 = 2^3 \cdot 5^3$
Power of a quotient	$(a/b)^n = a^n / b^n$	$(2/3)^2 = 4/9$
Zero exponent	$a^0 = 1$	$9^0 = 1$
Negative exponent	$a^{-n} = 1/a^n$	$4^{-2} = 1/16$
Fractional exponent	$a^{(m/n)} = (\sqrt[n]{a})^m$	$8^{(2/3)} = 4$

Notes