

Exponent Rules

Exponent of Zero	$a^0 = 1$ for $a \neq 0$
Negative Exponents	$a^{-n} = \frac{1}{a^n}$ for $a \neq 0$ Never leave a negative exponent -> take reciprocal & make exponent positive
Product of Powers	$a^m \cdot a^n = a^{m+n}$ When multiplying same bases, keep base & add exponents
Quotient of Powers	$\frac{a^m}{a^n} = a^{m-n}$ for $a \neq 0$ When dividing same bases, keep base & subtract exponents
Power of Power	$(a^m)^n = a^{mn}$ When you have a power to power, keep base & multiply exponents
Power of Product	$(ab)^m = a^m b^m$ When a product is to a power, apply power to both factors
Power of Quotient	$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ for $b \neq 0$ When a quotient is to a power, apply power to both dividend & divisor
Power of a sum/difference	Ex1: $(x + y)^2 = (x + y)(x + y)$ Ex2: $(x - y)^2 = (x - y)(x - y)$ * Must follow mult rules for polynomials to mult out
Difference of Squares	$(x - y)(x + y) = x^2 - y^2$