Rules of Exponents

☆ Product Rule

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

* Keep the base the same + ADD the exponents

☆ Quotient Rule

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

* Keep the base the same + SUBTRACT the exponents

☆ Power Rule

$$(x^m)^n = x^{mn}$$

* Keep the base the same + MULTIPLY the exponents.

☆ Negative Rule

$$x^{-n} = \frac{1}{x^n}, \; x \neq 0$$

* Take the reciprocal of the base + make the exponent positive.

☆ Zero Exponent

$$x^0 = 1, \; x \neq 0$$

* anything to the power of zero is 1.

Product to Power

$$(xy)^n = x^n y^n$$

Quotient to Power

$$\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}, \; y \neq 0$$