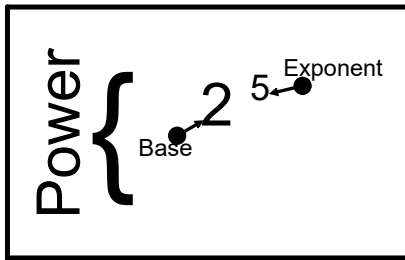


Chapter 2: Powers



$$(-\text{BASE})^{\text{Even}} = (+)$$

$$(-\text{BASE})^{\text{odd}} = (-)$$

$$(+\text{BASE})^{\text{any number}} = (+)$$

Standard Form to Powers of Ten Form

$$56\,209 = (5 \times 10^4) + (6 \times 10^3) + (2 \times 10^2) + (9 \times 10^0)$$

Exponent Laws

1) Zero Rule

$$(x)^0 = 1$$

2) Product of Powers Rule

$$(a)^3 \times (a)^5 = (a)^{3+5} = (a)^8$$

3) Quotient Rule

$$\frac{(x)^7}{(x)^5} = (x)^{7-5} = (x)^2$$

4) Power to a Power Rule

$$(a^5)^3 = a^{5 \times 3} = (a)^{15}$$

5) Power of Product Rule

$$\begin{aligned} [(a^5) \times (a^4)]^3 &= a^{5 \times 3} \times a^{4 \times 3} \\ &= a^{15} \times a^{12} \end{aligned}$$

6) Power of Quotient Rule

$$\begin{aligned} \left[\frac{(a)^6}{(b)^3} \right]^2 &= \frac{(a)^{6 \times 2}}{(b)^{3 \times 2}} \\ &= \frac{(a)^{12}}{(b)^6} \end{aligned}$$

7) Negative Exponent

$$(a)^{-7} = \frac{1}{(a)^7}$$