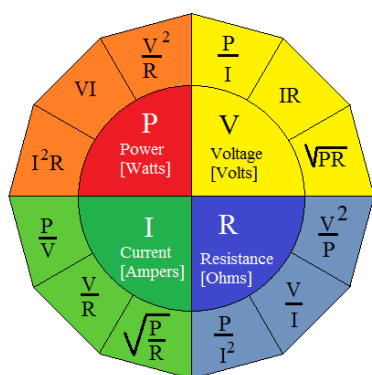


Electronics Equations

Tyler Hilbert

Electronic Formula Wheel



Equations from “Fundamentals of Electric Circuits”

Current: $I = dQ/dt$

(Note: This can also be written like this: $I = \Delta Q/\Delta t$)

Charge: $Q = \int_{t_0}^t i dt$

Voltage: $V = dw/dQ$

Power: $p = dw/dt$

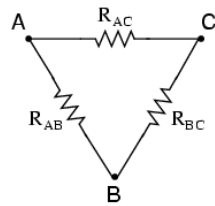
Kirchoff's Law: $\sum_{m=1}^M v_m = 0$

Resistance in series: $\sum_{n=1}^N R_n$

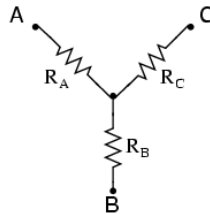
Resistance in parallel: $R = 1 / \sum_{n=1}^N 1/R_n$

Delta Wye conversion

Delta (Δ) network



Wye (Y) network



$$\text{Delta}(\Delta) \text{ to Wye}(Y): R_A = \frac{R_{AB}R_{AC}}{R_{AB} + R_{AC} + R_{BC}}$$

$$\text{Wye}(Y) \text{ to Delta}(\Delta): R_{AB} = \frac{R_AR_B + R_AR_C + R_BR_C}{R_C}$$