* Voltage is the work needed to move a charge from one location to another. Therefore
* V = W / q = dW/dq
* If voltage is positive, it travels from + to - Same direction both ways.
* C = q / t = dq/dt, sign can change.
* Current is considered as a flow of positive charge.
* Voltage – polarity and value
* Current – direction and value
* Force – mass x acc = mass x length/ time^2 = N = kg\*m/sec^2
* Power = work / time – force x length / time = W = kgm^2/sec^3
* Charge – current \* time – C = A x sec.
* P = (dw/dt) = (dw / dq)(dq/dt)
* If power is positive, it means your element consumes power. If power is negative, it means your element gives power.
* Sources – devices which convert non electrical energy to electrical energy.
* Two classifications – voltage source or current source

either dependent or independent (voltage dependent current source V = aI, current dependent current source I = pI)

* Independent – maintain voltage source across two terminals regardless of current
* An example of a dependent voltage source would be a transistor
* Dependent voltage sources change according to current, so there will be a lot of calculus involved.
* P has the dimensions of V / I
* R = pI / A
* R = Resistance p = resistivity L = Length A = Area
* Conductance – G = 1/ R units mho
* A closed path may have a gap. Every loop is a closed path but not every closed path is a loop.
* Kirchoff’s basic rules – Voltage gain + drop = 0 for each loop and for each node.