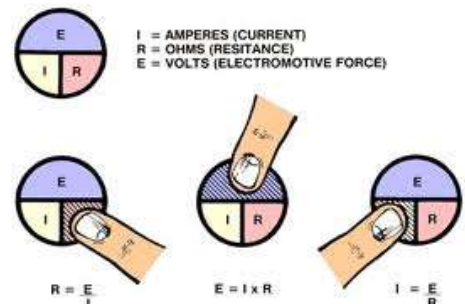## I-   Gas Tank: "Miles per Gallon (MPG)"
a.   A cars gas tank holds 20 gallons of fuel
   i.   That same car traveled 200 miles
   ii.   What is the "Miles per Gallon" of the Car?
      1.   200 miles / 20 gallons = **10 miles to the gallon**

b.   The car gas tank holds 20 gallons of fuel
   i.   A car gets "10 miles to the gallon"
   ii.   How far can the car drive?
      1.   20 gallons x 10 miles per gallon = **200 miles**

II-   Ideal Battery Capacity: "Amps per Hour (Ahr)":
a.   **Volts = pressure in a hose**
b.   **Amps = the size of the hose**

c.   A battery's capacity holds 20 Amp hours
   i.   A blender consumes 5 Amps
   ii.   How long will the battery last?
      1.   20 Amp hours / 5 Amps = **4 hours**

d.   The battery lasted 4 hours
   i.   The blender consumes 5 Amps
   ii.   What is the capacity of the battery?
      1.   4 hours x 5 Amps = **20 Amp hours**

III-   Convert Watts into Amps (Perfect conversion)
a.   Who likes PIE?   Power in Watts = Amps (I) x Volts (E)
b.   Blender labels lists 120 Volts (V) AC at 600 Watts (W)
c.   How many amps will the blender consume from a battery?
   i.   P = I x E   or   I = P/E   or   E = P/I
   ii.   So, to find Amps (I)
      1.   I = P/E   or I = 600W / 120 V = **5 Amps**

d.   Ex: How many Amps will a 100 Watt light bulb consume at 120 Volts?
   i.   P = I x E   or   I = P/E   or   E = P/I
   ii.   So, to find Amps (I)
      1.   I = P/E   or I = 100W / 120 V = **0.83 Amps**

I = AMPERES (CURRENT)
R = OHMS (RESITANCE)
E = VOLTS (ELECTROMOTIVE FORCE)

e.   How long will a 20Ahr battery run a 100 Watt light bulb?
   i.   A 20Ahr battery will last:
      1.   20Ahr / 0.83 Amps = **24 hours**

R = E/I   E = I x R   I = E/R

Sources:

Solar:

Utah Clean Energy (Solar):   http://utahcleanenergy.org/our_work/solar_salt_lake_project

Rocky Mountain Power Solar Program: http://portal.ecosconsulting.com/rmp_solar/program_info.html,

                                                         http://portal.ecosconsulting.com/rmp_solar/guide_to_solar.html

Utah Solar Energy Association: http://www.utsolar.org/

Wind:

Utah Clean Energy (Wind):   http://utahcleanenergy.org/our_work/utah_wind_power_campaign

Retail Stores:

Harbor Freight: http://www.harborfreight.com/

Northern Tool: http://www.northerntool.com/