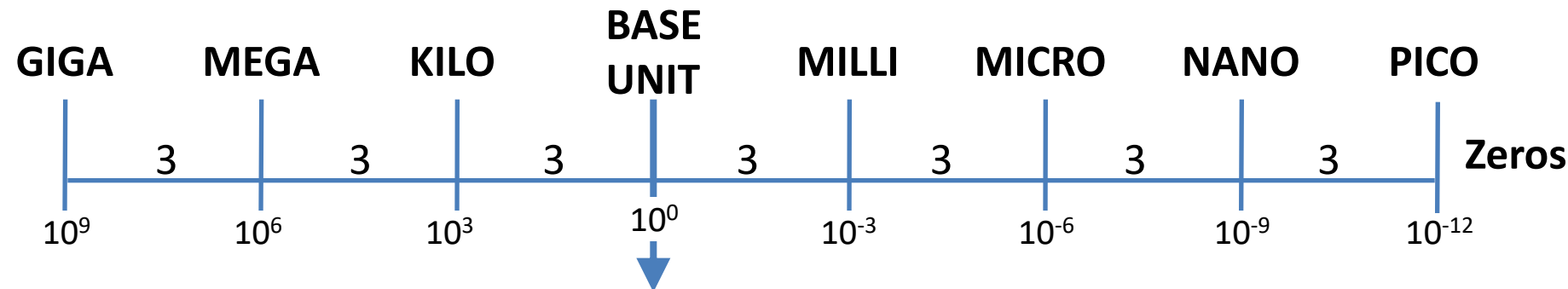
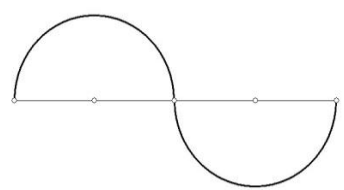


Scientific Notation

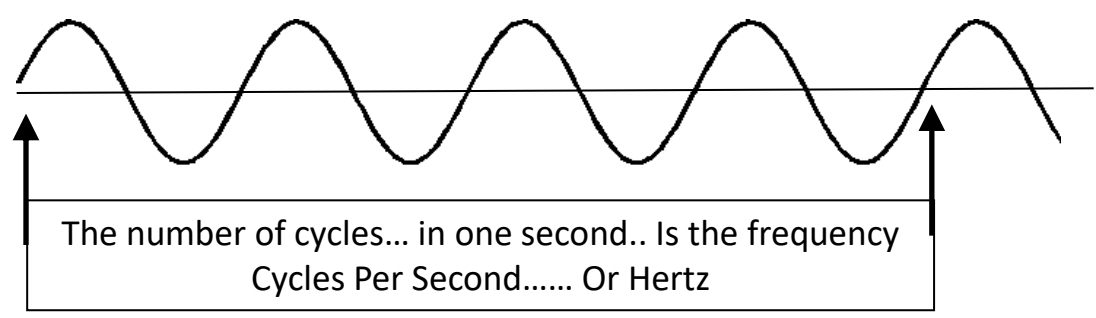


Frequency	Cycles/Sec
Frequency	Hertz
Voltage	Volts
Inductance	Henries
Resistance	Ohms
Capacitance	Farads

Circuit Properties						
Common Name	Description	Formal Name	Unit of Measure	Symbol	Ohms Law Formula	Water Tank Analogy
Voltage	The force which pushes electrons around a circuit	Electromotive Force	Volts	E	$E = IR$	Water pressure caused by water level
Current	The quantity of electrons moving past a given point	Current	Amps	I	$I = E/R$	Rate of flow of water from tank spout
Resistance	Resistance to flow of electrons	Resistance	Ohms	R or Ω	$R = E/I$	Crimping the hose or closing the valve
Component Properties						
Resistor	A device which resists the flow of electrons	Resistance	Ohms	R	-- Does not change with frequency	
Inductor	A Device - Which Stores energy in a magnetic field	Inductance	Henry	L	-- Passes DC - opposes AC and RF -- The higher the frequency, the higher the resistance	
Capacitor	A Device - Which Stores energy in an electric field	Capacitance	Farad	C	-- Blocks DC - passes AC and RF -- The higher the frequency, the lower the resistance	



One Cycle

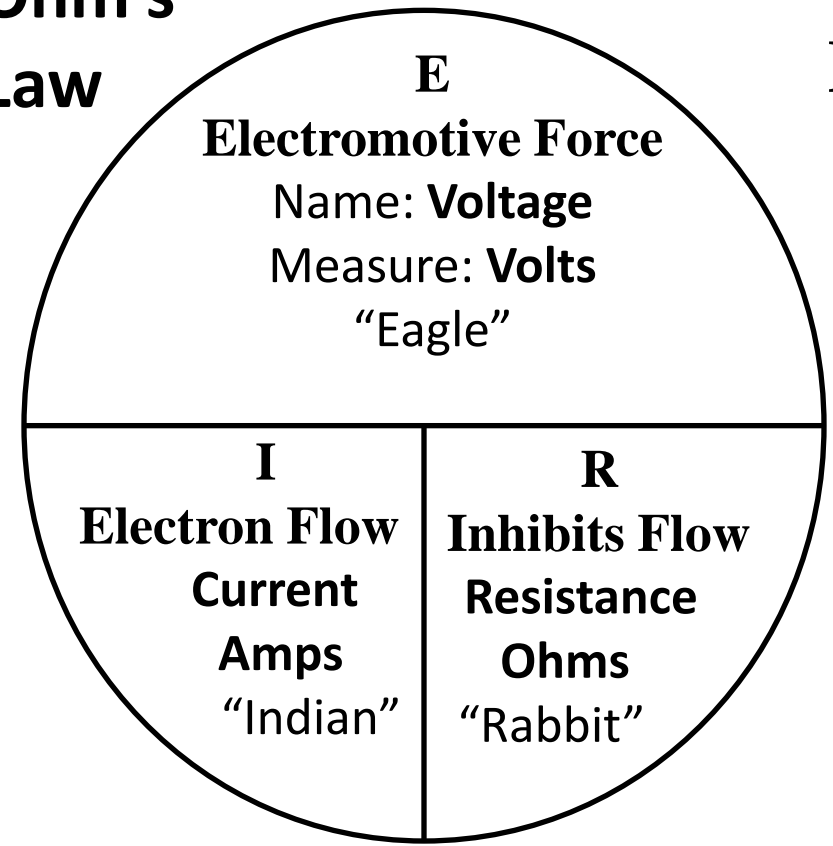


The number of cycles... in one second.. Is the frequency
Cycles Per Second..... Or Hertz

- Radio Waves Travel at speed of light
- Distance a radio wave travels in 1 cycle... is its wavelength
- Wavelength (in meters) = 300 / Frequency in MHz
- Example: 300 / 150 MHz = 2 Meters

$$\lambda_{\text{meters}} = \frac{300}{f_{\text{MHz}}}$$

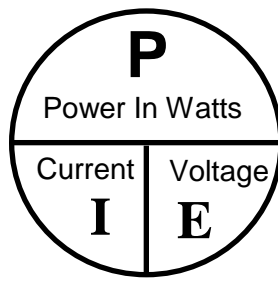
Ohm's Law



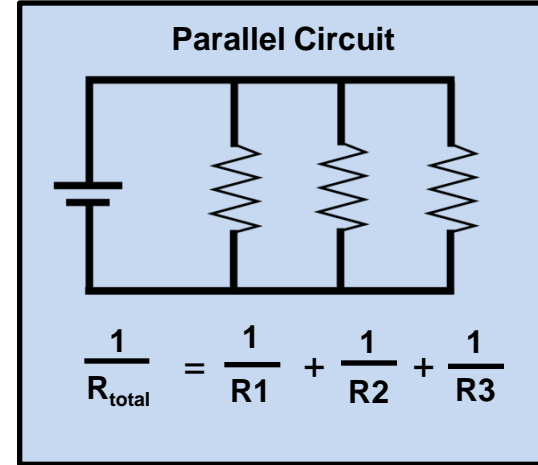
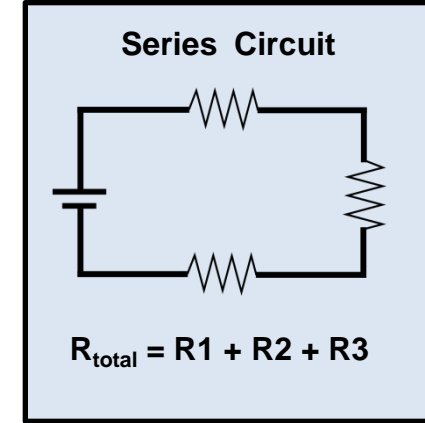
$$I = \frac{E}{R}$$

$$E = I R$$

$$R = \frac{E}{I}$$



$$\text{Power In Watts} = I \times E$$



Expressing Value Change In Decibels

	Total db Change	Power
	+10 db	100
Add 3 db	+9 db	80
Add 3 db	+6 db	40
Add 3 db	+3 db	20
Base	0	10
Subtract 3 db	-3 db	5
Subtract 3 db	-6 db	2.5
Subtract 3 db	-9 db	1.25
	-10 db	1.0

Every Three db doubles (or halves) the Power