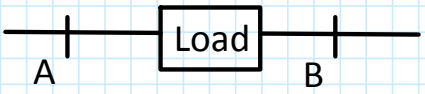
Phy "Potential Difference" Summary

Monday, January 09, 2023 5:35 PM

1. Electrons flow from the more negative body to the less negative body.



$$U_{AB} = U_A - U_B$$

REMARK!!!!

$U_{BA} = -U_{AB}$

$U_{AB} = -U_{BA}$

2. **Measuring the Electric Voltage:**

The voltage can be measured using:

→ Voltmeter

Analog Digital

✓ **Analog Voltmeter :**

$$U = \frac{S \times d}{D}$$

Where:

- ✓ Dial: total number of divisions
- ✓ d: deviation of the needle
- ✓ S=R: max voltage that can be measured (S= Scale / R= Range)

REMARK!!!

When using the voltmeter:

→ Use the scale just greater than the measured voltage (if the voltage is known).

→ We start with the largest.

→ **Oscilloscope:** measures and displays the electric voltage.

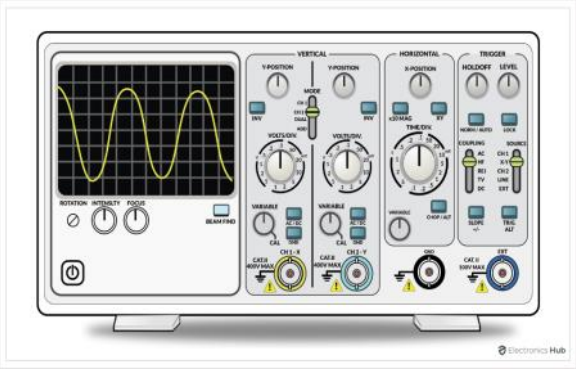
$U = S_v \times y$

Where:

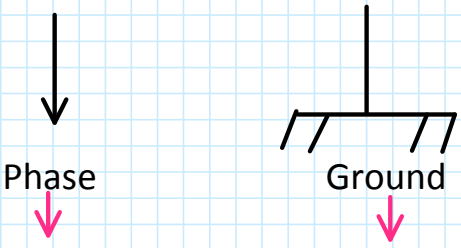
V: voltage (volts)

S_v: Vertical sensitivity (scale on vertical) (V/div)

Y: number of divisions (div)



✓ **Connections of the Oscilloscope:**

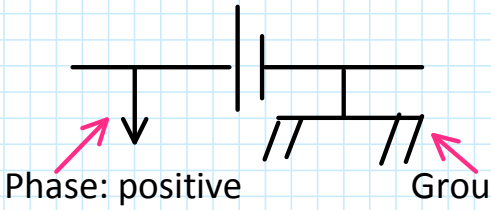


Connected to the positive terminal

Connected to the negative terminal

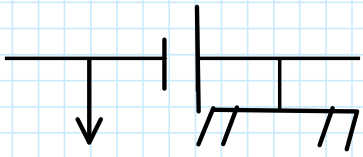
★ Oscilloscope measures: $U_{phase} \rightarrow U_{ground}$

✓ **Proper connection of the oscilloscope:**



⇒ Line is displaced downward

❖ **If the connections are reversed:**



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$$\begin{cases} phase \rightarrow negative \\ ground \rightarrow positive \end{cases}$$

⇒ The line will be displaced downward with equal number of divisions