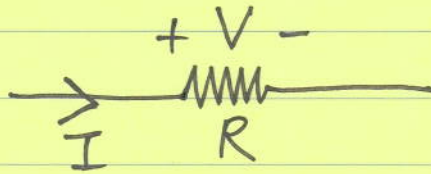


Ohm's Law

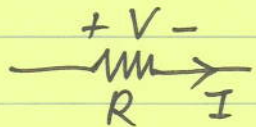


$$V = IR$$

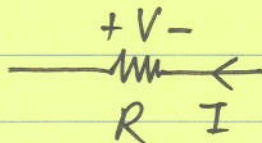
.... but only if all of the following are true:

- V must be the voltage across the resistor R .
- I must be the current through the resistor R .
- I must flow into the terminal of R that has the plus side of the voltage V .

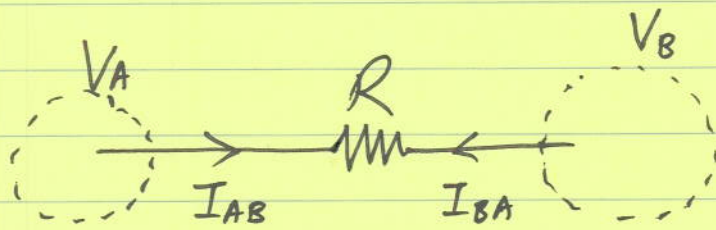
eg.  $V = IR \checkmark$

 $V = IR \checkmark$

 $V \neq IR \times$ in fact, $V = -IR$

 $V \neq IR$ in fact, $V = -IR$

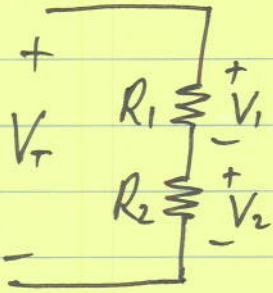
Another way of looking at Ohm's Law - suitable for Node Voltage:



$$I_{AB} = \frac{V_A - V_B}{R}$$

$$I_{BA} = \frac{V_B - V_A}{R}$$

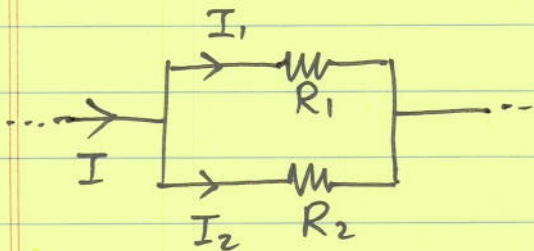
Voltage Divider Rule For resistors in series.



$$V_1 = V_T \cdot \frac{R_1}{R_1 + R_2}$$

$$V_2 = V_T \cdot \frac{R_2}{R_1 + R_2}$$

Current Divider Rule For resistors in parallel



$$I_1 = I \cdot \frac{R_2}{R_1 + R_2}$$

$$I_2 = I \cdot \frac{R_1}{R_1 + R_2}$$

Note: The current divider formula is different from the voltage divider.

For the current divider, you have to put the "wrong" resistor on top.

If you want the current in R_1 , R_2 goes on top!