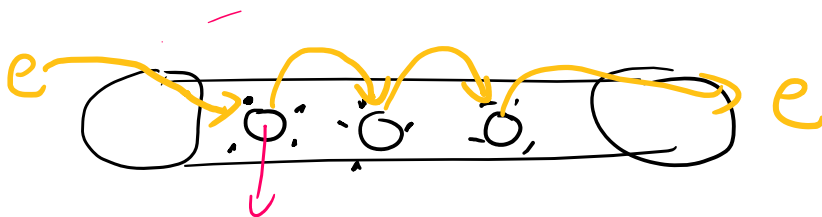


ANY material WILL

Oppose current travelling
through it.



uses
energy
to
break
bonds

effort done → Resistance

* Good Resistor - able to slow down current very well (Insulators)

* Bad Resistor - not able to slow down current well.

(good conductor)

③ copper ←

① Silver

② Gold

→ super conductors
at coldest temp -
- 273°C

Golden Rule

ohms law

$$V = I R$$

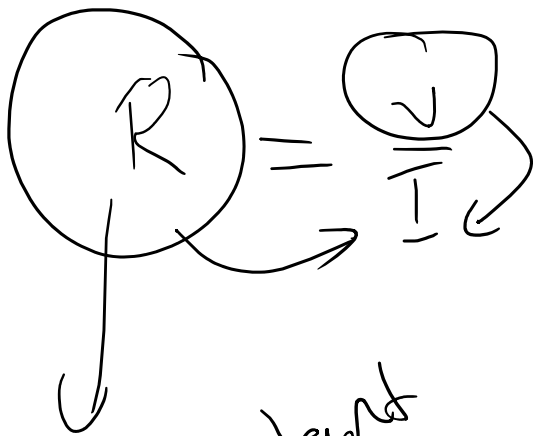
$$I = \frac{V}{R}$$

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

Volt
(V)

Ampere
(Amp)
(A)

ohm
(Ω)



R is constant
for regular
resistors

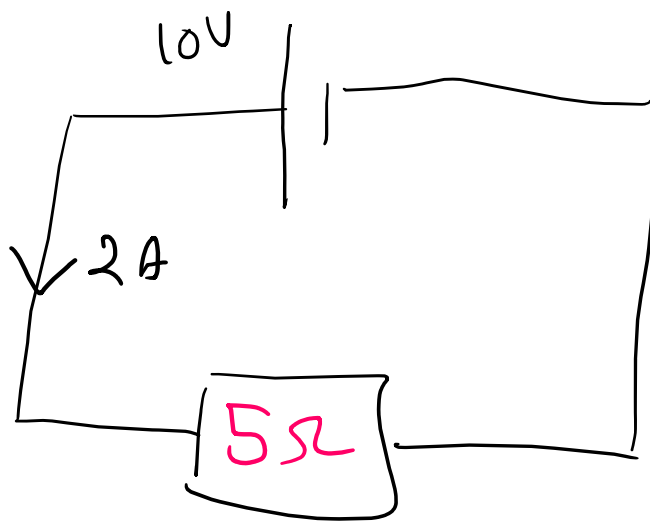
$$100 = \frac{100}{1}$$

$$100 = \frac{200}{2}$$

$$100 = \frac{300}{3}$$

Example calculate R

$$V = IR$$

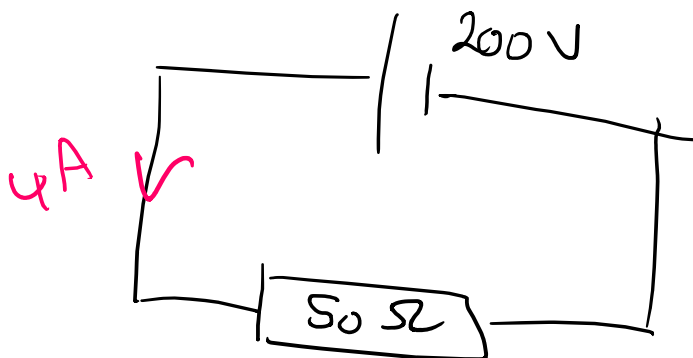


$$R = \frac{V}{I}$$

$$= \frac{10}{2} = 5\Omega$$

calculate I

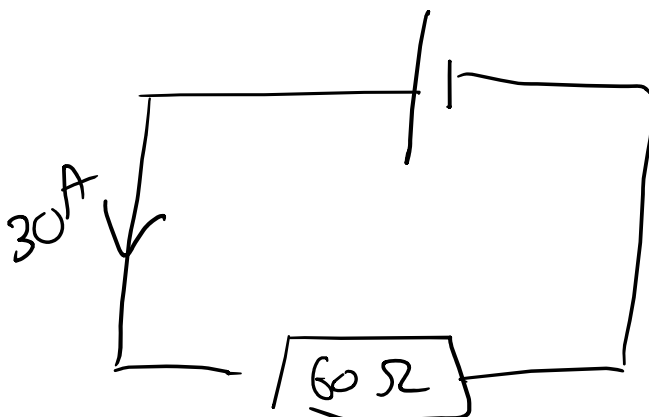
$$V = IR$$



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

$$= \frac{200}{50} = 4A$$

calculate EMF

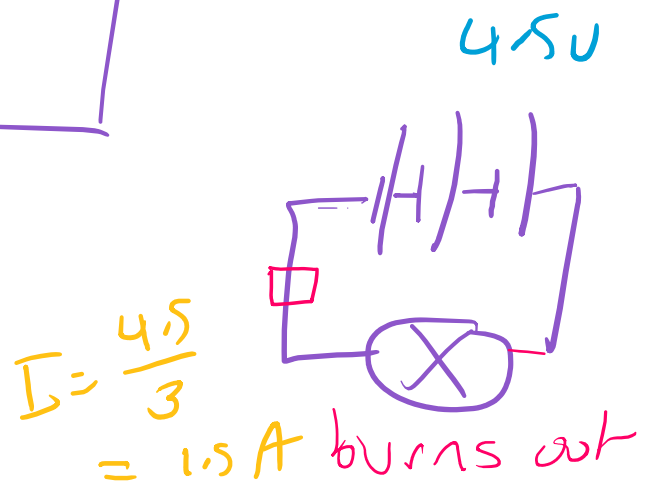
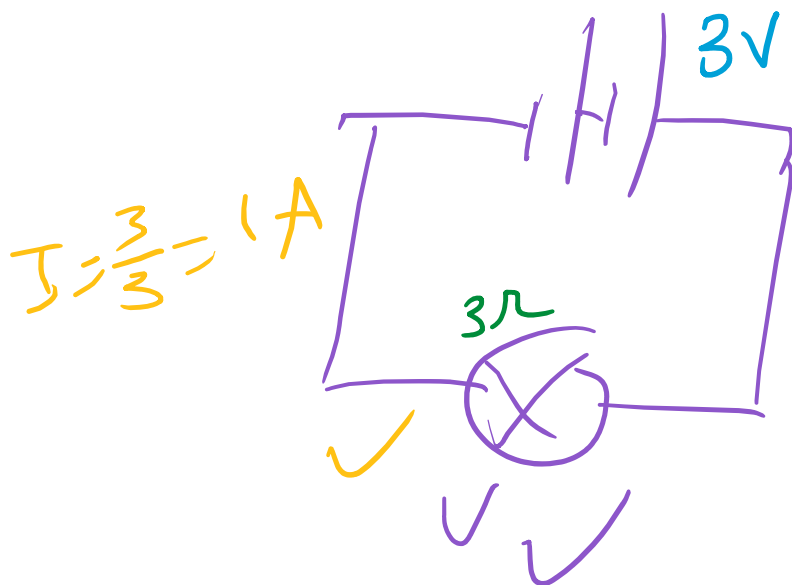
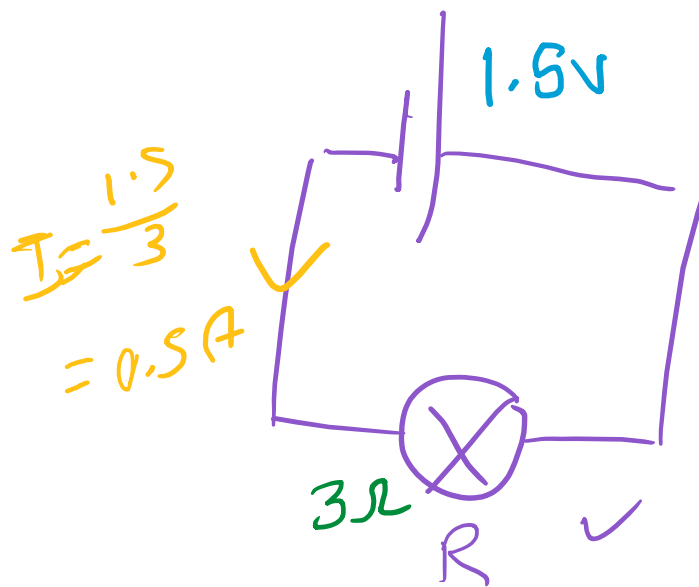


$$V = IR$$

$$= 30 \times 60 = 1800V$$

$$\uparrow V = \uparrow \pm R$$

const



$$V = I R$$

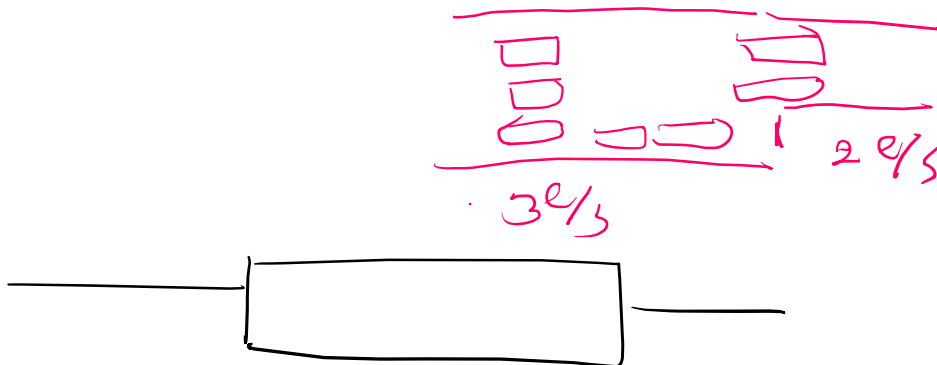
$$\uparrow R = \frac{V}{\downarrow I}$$

$$\downarrow I = \frac{V}{\uparrow R}$$

Current is a Follower V & R control it

$$\uparrow V \propto I \uparrow \quad \uparrow R \propto \frac{1}{I \downarrow}$$

circuit Symbol



Resistance

Resistors are used in circuits to control current.

$$\begin{array}{cc}
 R \uparrow & I \downarrow \\
 R \downarrow & I \uparrow
 \end{array}$$