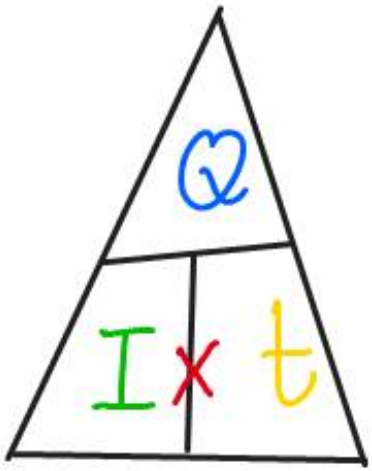
① ..... $I = \frac{Q}{t}$

② ... $Q = I \times t$

③ .... $t = \frac{Q}{I}$



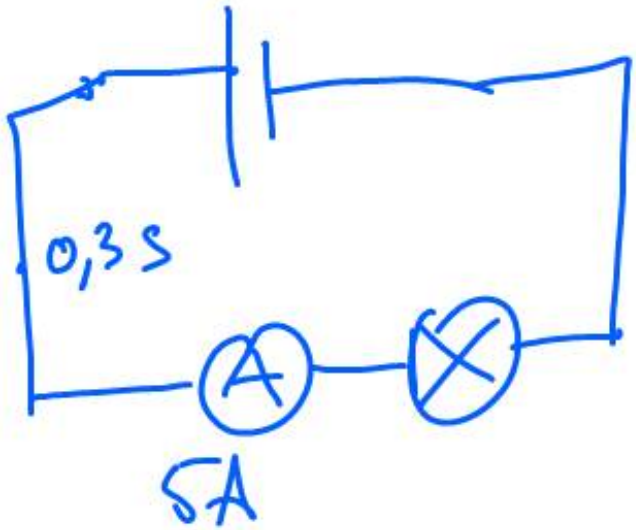
Q = Amount "Quantity" of charge
Measured in Coulombs (C)

I = Current Strength
measured in ampere (A)

t = time taken for current to flow
measured in seconds (s)

Example 1

Pg 65



$Q = ?\,C$

$t = 0,3\,s$

$I = 5A$

$Q = I \times t$

$= 5 \times 0,3$

$= \underline{1,5\,C}$

Ex 2

$Q = 450\ C$

$I = ?\ A$

$t = \frac{1}{2}\ \text{minute} \times 60$

$= 30\ \text{seconds}$

$I = Q/t$

$= \frac{450}{30}$

$= 15\ A$

Ex 3

$Q = 720\,C$

$I = 4\,A$

$t = ?\,s$

$$t = \frac{Q}{I}$$

$$= \frac{720}{4}$$

$$= 180\,s$$

$\div 60$ ∴ 3 minutes

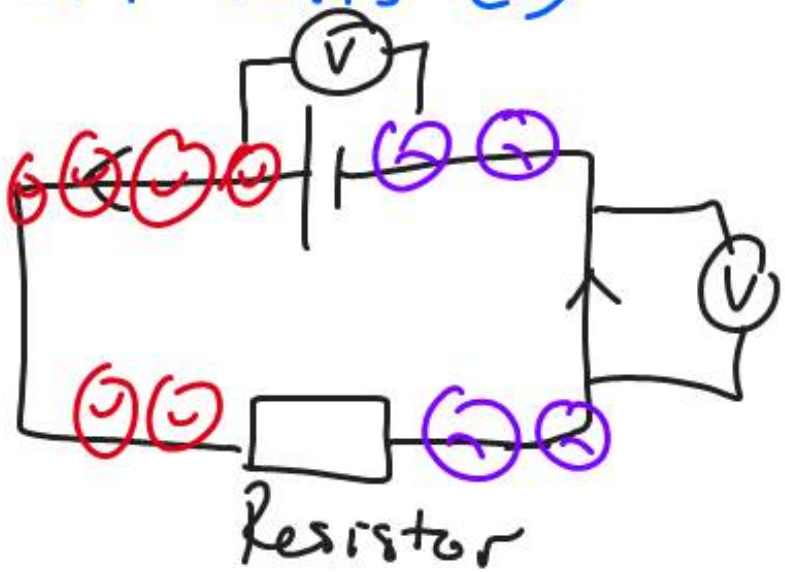
Potential Diff. (V) P66

E or W

Energy transfomed per unit charge

Q

measured in volts (V)



Potential difference $= \frac{\text{Energy}}{Q}$

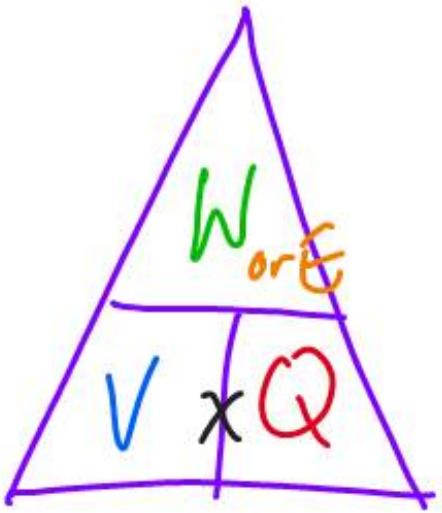
$V = \frac{E}{Q}$ → Energy

or

$V = \frac{W}{Q}$ → Work

Work $\Rightarrow$ W measured in joule (J)

Energy $\Rightarrow$ E measured in joule (J)



$$V = \frac{W}{Q} = \frac{1\,J}{1\,C}$$

$$= 1\,J/C \text{ or } 1\,Volt$$

Ex 1

$V = ?\,V$

$Q = 300\,C$

$E = 66000\,J$

$$V = \frac{E}{Q}$$

$$= \frac{66000}{300}$$

$$= 220\,V$$

Ex 2

$V = 12$

$Q = ?$

$E = 60\,J$

$Q = \frac{W}{V}$

$Q = \frac{60}{12}$

$Q = 5C$ ✓

Ex 3

$V = 240\,V$

$E = ?J$

$Q = 150C$

$E = QV$

$= 150 \times 240$

$= 36000J$ ✓

Resistance

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

Pg 69

$Q = I \cdot t$ $\quad V = \frac{W}{Q} = \frac{E}{Q}$

Ex 1

$V = 6V$

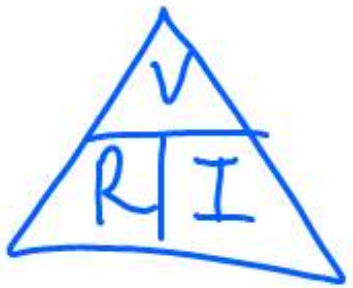
$I = 2A$

$R = ?\Omega$

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

$= \frac{6}{2}$

$= 3\Omega$



Ex 2

$I = ?\ A$

$V = 12\ V$

$R = 0,1\ \Omega$

$I = V/R$

$= \frac{12}{0,1}$

$= 120\ A$

Ex 3

$R = 10\ \Omega$

$V = ?\ V$

$I = 1,2\ A$

$V = IR$

$= 1,2 \times 10$

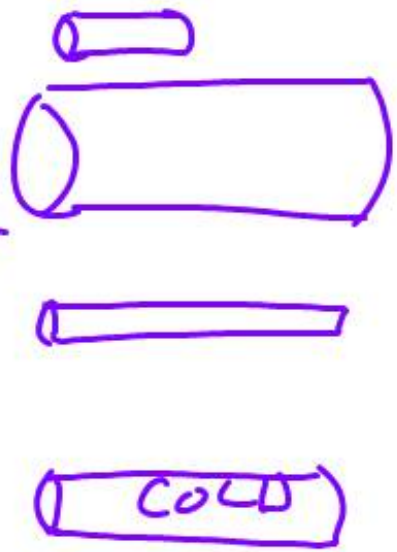
$= 12\ V$

Factors Affecting Resistance

- length
- diameter (thickness)
- Temperature
- straight or twisted.

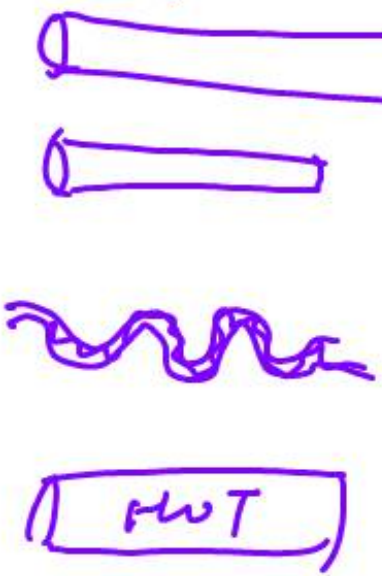
Low Resistance

Short
thick
straight
cold



High Resistance

Long
thin
twisted
Hot



Pg 71

Voltmeter

measures Potential difference

symbol in a circuit 

connected in parallel

[offers a very high resistance to current]

Ammeter

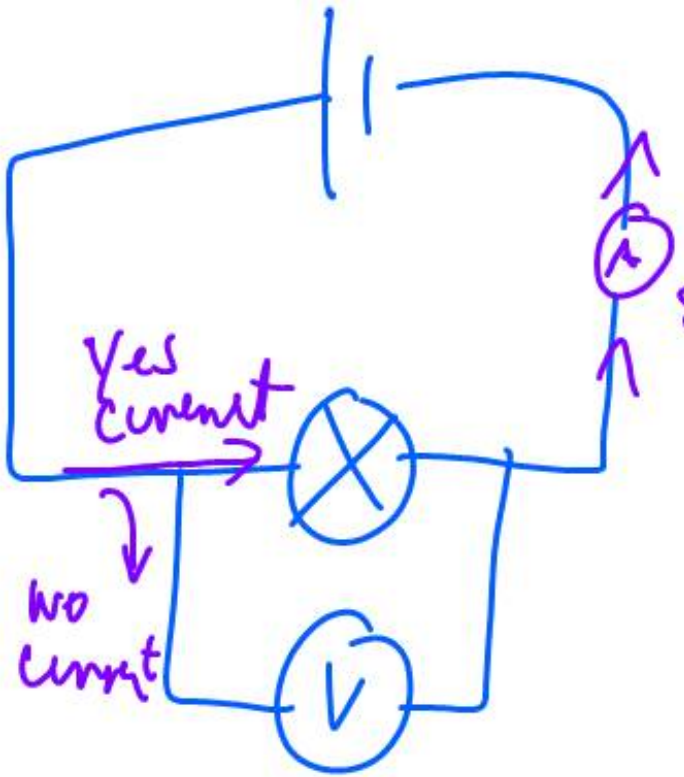
measures Current strength

symbol 

in a circuit

connected in series.

[offers Low resistance]



Yes current

No current

series [Low Resistance]

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