Current Electricity Cheat Sheet

by Taneesha (Taneesha) via cheatography.com/194359/cs/40558/

Basic notations

current (I)	q/t
q	charge
V	terminal voltage
resistance (R)	V/I or ρ l/A

in the formula for resistance, the first formula has current and the second one has length of the resistor

Effect of stretching of wire on resistance

L -- original length of wire
A -- original cross-sectional area
L' -- length of wire after stretching
A' -- cross-sectional area of wire after stretching
final resistance, R' = n^2R

Resistors in Series

V = IR(s) ......[R(s) is equivalent resistance for resistors in series]
general formula for 'n' resistors in series --
R(s) = R(1) + R(2) + R(3) + ... + R(n)
∴ R(s) = n R

n --- no. of equal resistors

Resistors in Parallel

I = V/R(p) .....[R(p) is equivalent resistance for resistors in parallel]
general formula for 'n' resistors in parallel --
1/R(p) = 1/R(1) + 1/R(2) + 1/R(3) + ... + 1/R(n)
∴ R(p) = R/n

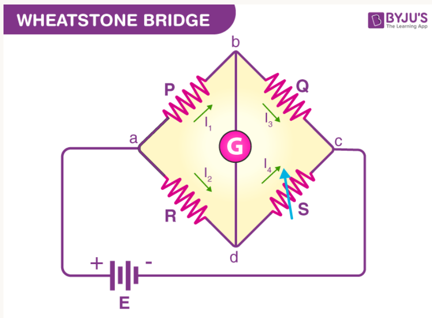
Kirchoff's Laws

1^{st} Law :-
At any junction of several circuit elements, the sum of currents entering the junction must be equal to sum of currents leaving it.
2^{nd} Law:-
The algebraic sum of changes in potential around any closed resistor loop must be zero.

Relation b/w R(s) & R(p)

R(s)/R(p) = n^2

Wheatstone Bridge



Here if,
P/R = Q/S or
P/Q = R/S, then,
we can simply remove G.
Now, P & Q are in series and R & S are in series, and the combination of the two are in parallel

By **Taneesha** (Taneesha)
cheatography.com/taneesha/

Published 5th November, 2023.
Last updated 5th November, 2023.