

# **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 I/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 --

 $R(s) = R(1) + R(2) + R(3) + \dots + R(n)$ 

∴ R(s) = n R

n --- no. of equal resistors



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

## Resistors in Parallel

I = V/R(p) .....[R(p) is equivalent resistance for resistors in parallel]

general formula for 'n' resistors in parallel --

$$1/R(p) = 1/R(1) + 1/R(2) + 1/R(3) + .... + 1/R(n)$$

 $\therefore R(p) = R/n$ 

### Kirchoff's Laws

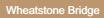
1st Law :-

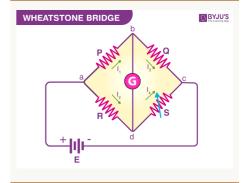
At any junction of several circuit elements, the sum of currents entering the junction must be equal to sum of currents leaving it.  $2^{\text{nd}}$  Law:-

The algebraic sum of changes in potential around any closed resistor loop must be zero.

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

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





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

Published 5th November, 2023. Last updated 5th November, 2023. Page 1 of 1. Sponsored by **ApolloPad.com**Everyone has a novel in them. Finish Yours!

https://apollopad.com