

CLASS 12

PHYSICS

REVISION NOTES

Class 12 Physics Chapter 3 Current Electricity – Revision Notes

Current electricity explains how charge moves through a conductor and how that flow is governed by resistance, and this Class 12 Physics Chapter 3 recap covers Ohm's law, resistor combinations, and Kirchhoff's junction and loop rules.

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Common Mistakes Students Make in Current Electricity

Confusing EMF and terminal voltage: forgetting internal resistance makes terminal voltage less than EMF whenever current flows.

Series/parallel resistor mix-ups: using the wrong combination formula in a more advanced circuit involving internal resistance.

Kirchhoff's law sign errors: not consistently assigning a current direction and loop-traversal direction before writing the equations.

Wheatstone/meter bridge balance errors: misapplying the ratio condition or misreading the null-point position.

Basics

$I = Q/t = nAev_d$; Ohm's law: $V = IR$.

$R = \rho l/A$; $R_T = R_0(1 + \alpha \Delta T)$.

Combinations & Laws

Series: $R = R_1 + R_2 + \dots$; Parallel: $1/R = 1/R_1 + 1/R_2 + \dots$

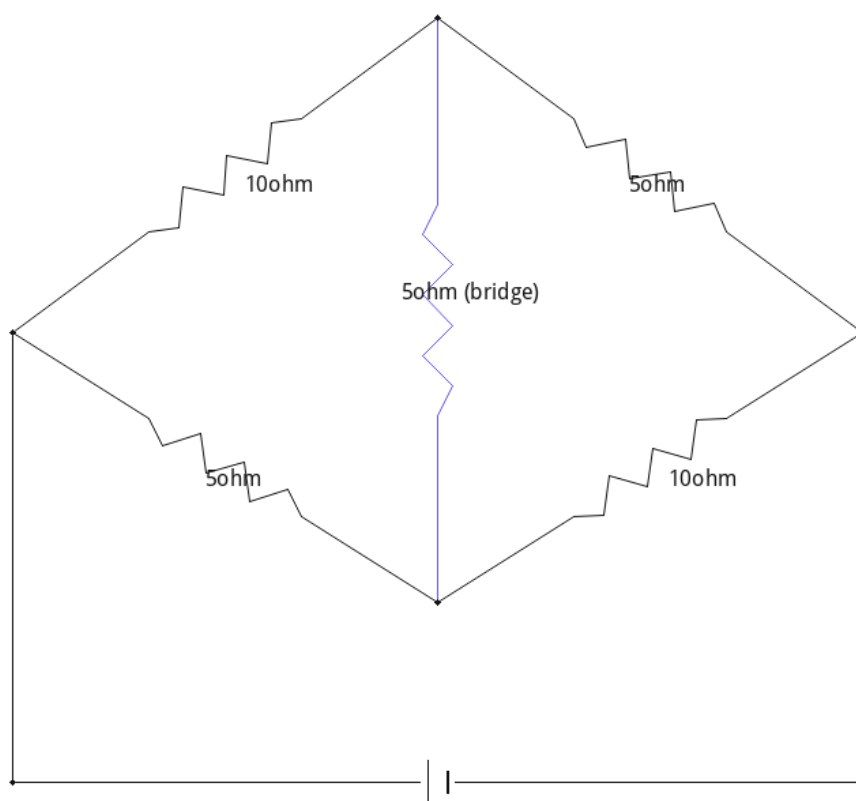
Kirchhoff's junction rule ($\sum I = 0$) and loop rule ($\sum V = 0$).

Wheatstone bridge balance: $P/Q = R/S$.

One-Line Summary

Current electricity models charge flow via Ohm's law and resistivity, with Kirchhoff's laws and the Wheatstone bridge enabling analysis of complex resistor networks.

Quick visual: a worked diagram from the full [Solutions](#) page, for reference.



Bridge network for Q3.7: 10ohm/5ohm arms with a 5ohm bridge resistor, 10V battery.

Class 12 Physics Chapter 3 – Solutions and Important Questions

Need full answers or more practice? See the [Class 12 Physics Chapter 3 Solutions](#) and [Class 12 Physics Chapter 3 Extra Questions](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

Quick revision: [Chapter 1](#) | [Chapter 2](#)

What to Revise First (and Last) in This Chapter

Prioritise Ohm's law with internal resistance (EMF vs terminal voltage) and the series/parallel resistor rules first, since they anchor most numericals. Leave detailed Kirchhoff's law and Wheatstone bridge derivations for an earlier, slower revision pass.

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