

ECE 2015

Electric circuits

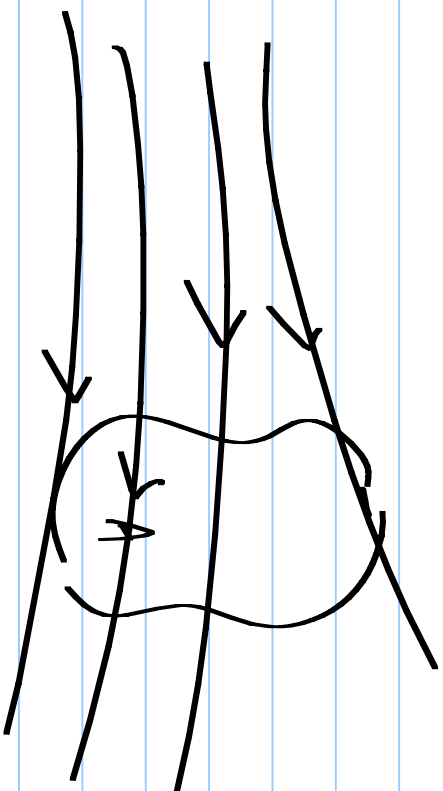
1/8/2017

Charges in fields ← Maxwell's equation

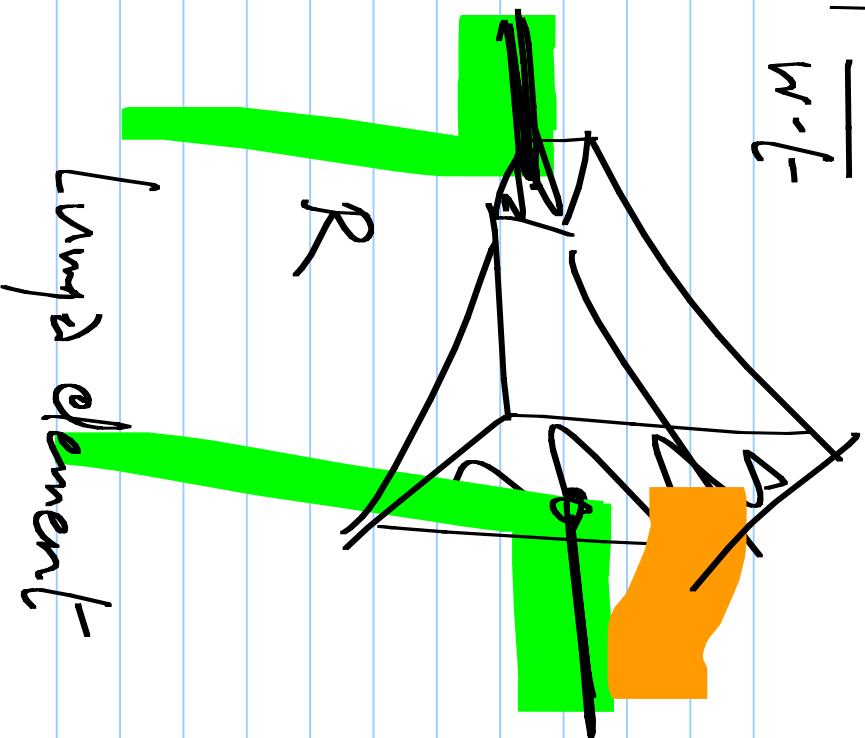
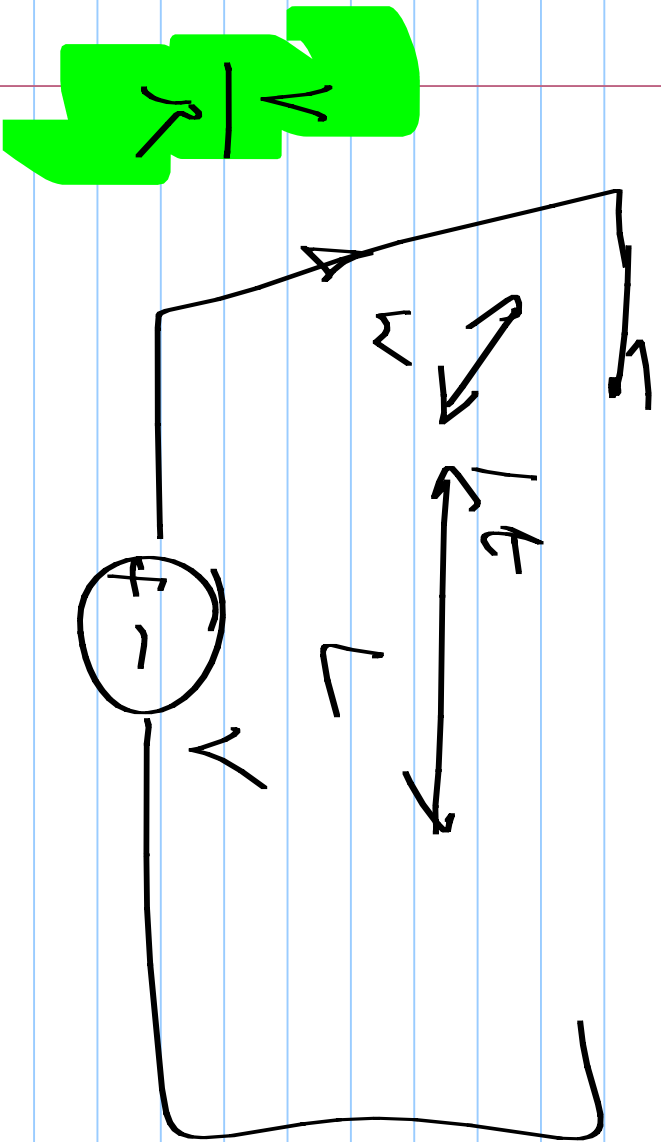
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- Charge flow in wires

- Aggregated quantities



$$R = \rho \cdot \frac{L}{W \cdot l}$$



Lungya element

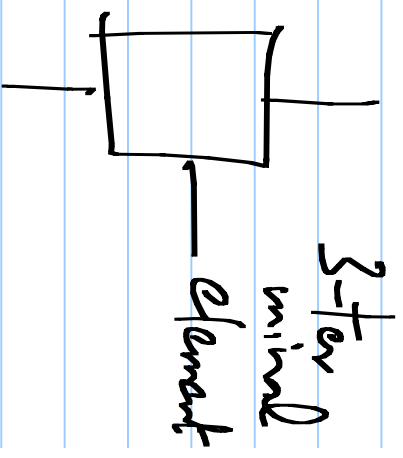
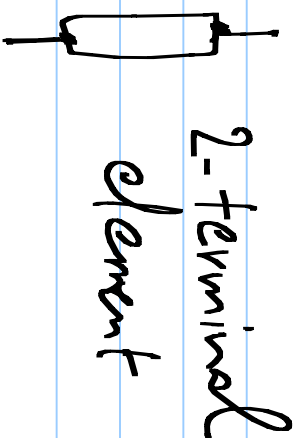
Electric circuits: Interconnection of "electrical elements"

Lumped elements: Behaviour can  $(R, L, C)$

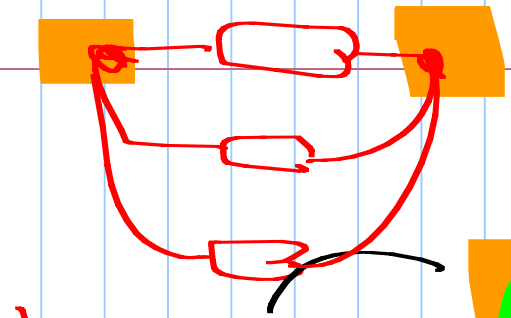
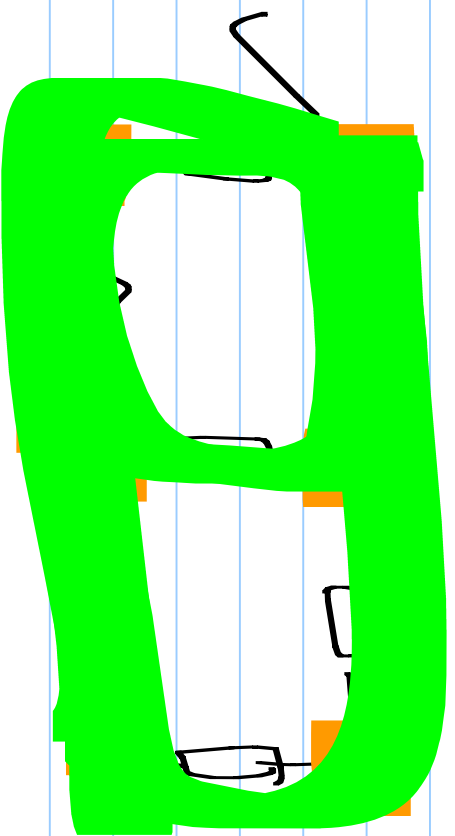
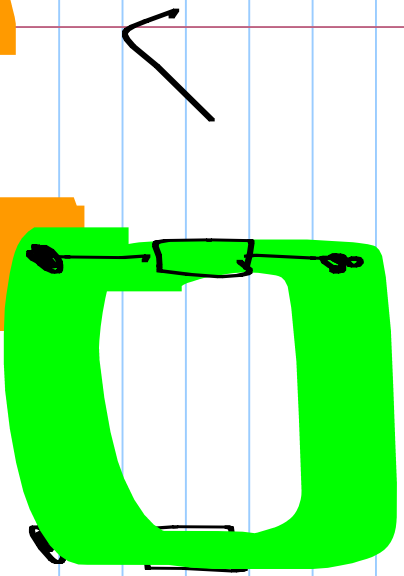
be described using terminal quantities

$(V, I)$

paths for current



Circuit: Interconnection of elements w/ loops (two-terminal)



Nodes: Connecting point of 2 or more terminals

Loop: Closed path: Start from a node

Loop: Start from a node, traverse the elements & return to the same node

Element:

