EXPERIMENT: No. 2 Verification of KCL

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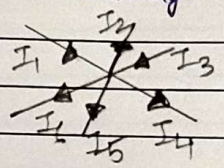
KCL → Kirchoff's current Law

Q) Verify KCL by applying it in the circuit.

→ To find: Rate of current flowing through 2Ω and 4Ω resistors.

←KCL→

$\Sigma I_{incoming} = \Sigma I_{outgoing}$



$I_1 + I_2 + I_3 = I_4 + I_5 + I_6$

Points A, B, C, D, E form a node

$\therefore I_2 + I_4 + 8 + 5 = 16$ (KCL).

$I_2 + I_4 = 16 - 13$

$I_2 + I_4 = 3A$ — (1)

Apply current division to find I_2

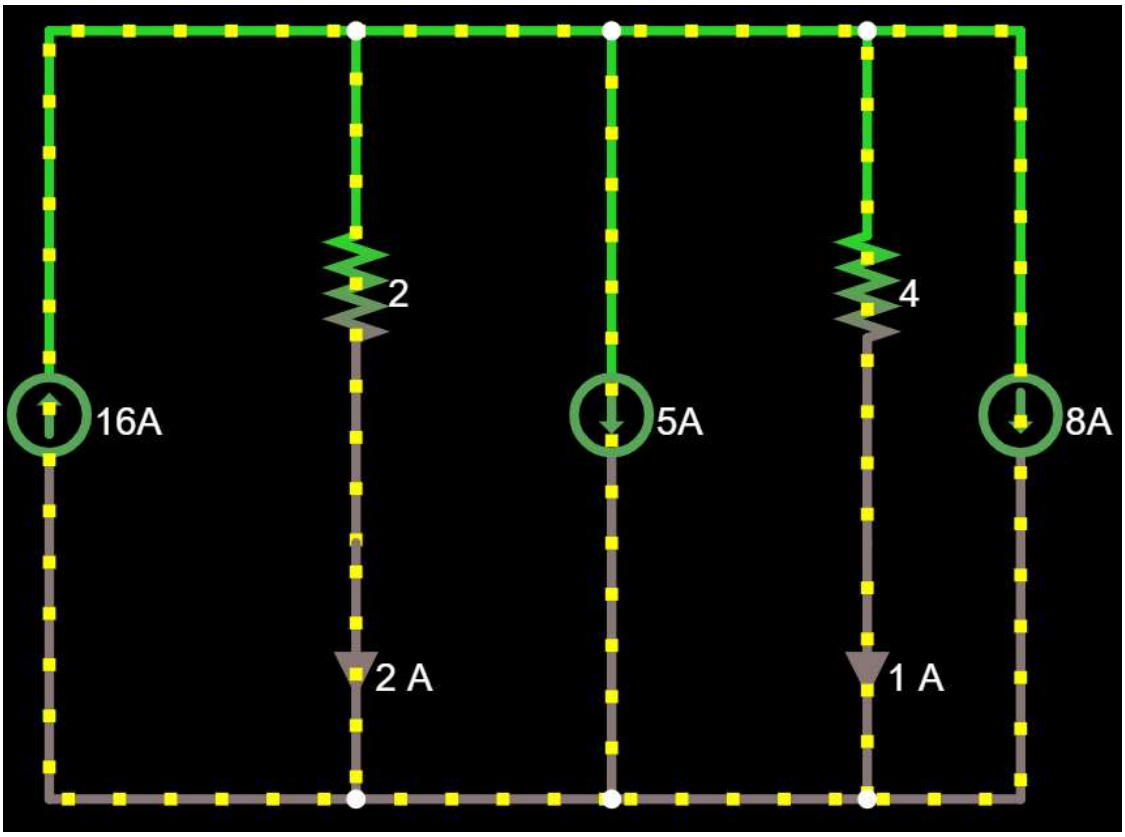
$$I_2 = \frac{I_T \times 4}{2+4} = \frac{3 \times 4}{6} = 2A$$

$\boxed{I_2 = 2A}$

Recall equation (1)

$\therefore I_4 = 3 - 2 = \underline{1A}$

In the simulation we can see that the value of current match with the above theoretical analysis. Thus, KCL is verified.


2
4
16A
5A
8A
2 A
1 A