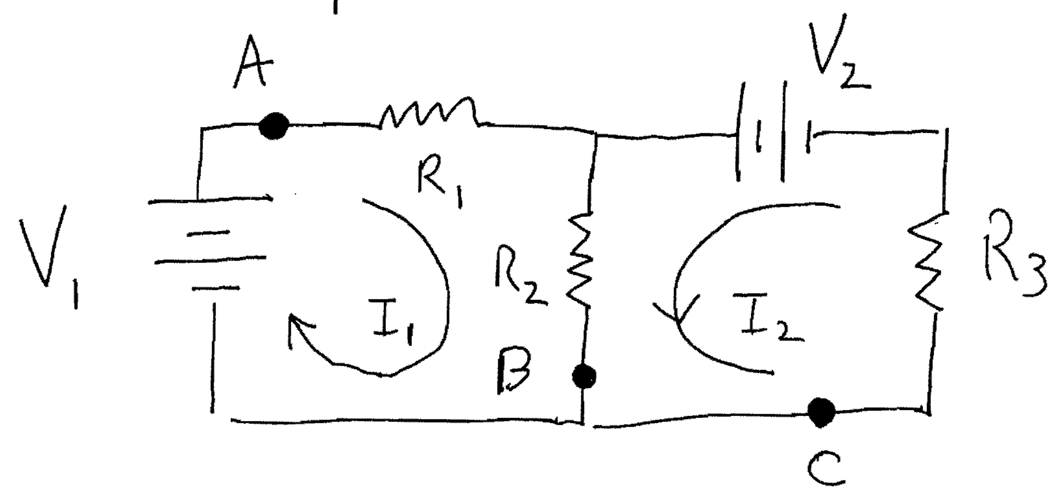
Current Loops:

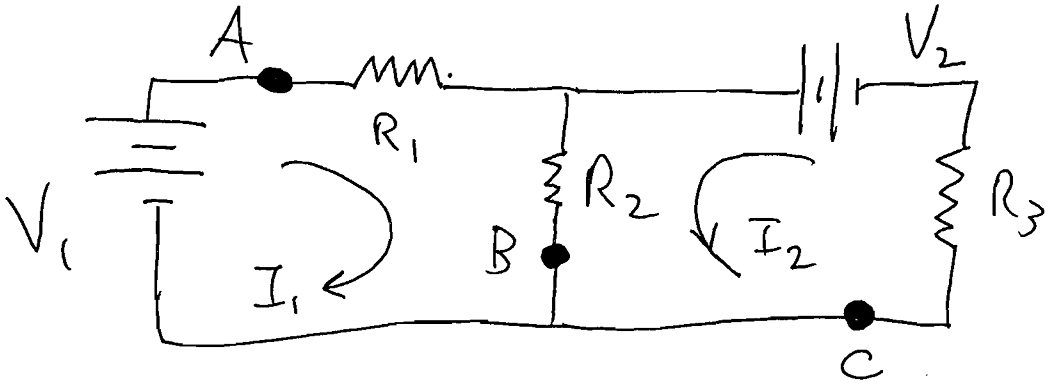
Using current loops along with Kirchoff's voltage rules is extremely useful for complex circuits.



Find the current at points A, B, C.

Solution:

Make current loops I_1 and I_2, then use $\sum_{\substack{\text{closed}\\ \text{loop}}} \Phi = 0$ along with some linear algebra to solve for I_1 and I_2. Then $\boxed{I_A = I_1}$ $\boxed{I_B = I_1 + I_2}$ $\boxed{I_C = I_2}$



$$\text{①}\quad V_1 = I_1 R_1 + (I_1 + I_2) R_2$$

$$\text{②}\quad V_2 = (I_1 + I_2) R_2 + I_2 R_3$$

$\sum_{\text{closed loop}} \Phi = 0$

Matrix equation:

$$\underbrace{\begin{pmatrix} R_1 + R_2 & R_2 \\ R_2 & R_2 + R_3 \end{pmatrix}}\begin{pmatrix} I_1 \\ I_2 \end{pmatrix} = \begin{pmatrix} V_1 \\ V_2 \end{pmatrix}$$

Row Reduce matrix to solve for I_1, I_2. Remenber the Solution is:

$\boxed{I_A = I_1}$ $\boxed{I_B = I_1 + I_2}$ $\boxed{I_c = I_2}$