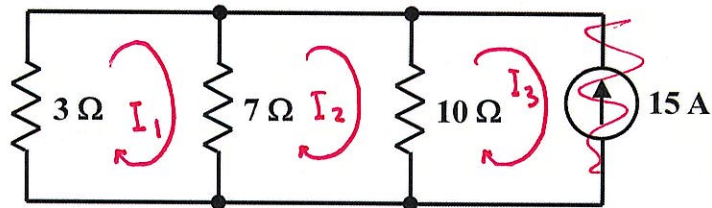


Homework Problem 017

Express the mesh equations in the matrix form discussed in class.



$$I_3 = -15A \quad (\text{constraint equation for mesh 3})$$

$$(3\Omega)I_1 + 7\Omega(I_1 - I_2) = 0 \quad (\text{KVL for mesh 1})$$

$$(7\Omega)(I_2 - I_1) + (10\Omega)(I_2 - I_3) = 0 \quad (\text{KVL for mesh 2})$$

In matrix form:

$$\begin{bmatrix} 0 & 0 & 1 \\ 10 & -7 & 0 \\ -7 & 17 & -10 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \end{bmatrix} = \begin{bmatrix} -15 \\ 0 \\ 0 \end{bmatrix}$$