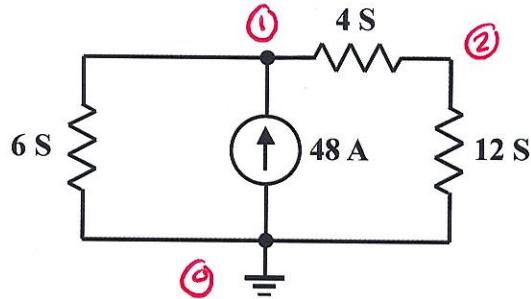


Homework Problem 011

Without making any simplifications, develop node equations and express them in the matrix form discussed in class. Note that the resistors are specified in conductance units.



$$6V_1 - 48 + 4(V_1 - V_2) = 0 \quad (\text{KCL at node 1})$$

$$4(V_2 - V_1) + 12(V_2) = 0 \quad (\text{KCL at node 2})$$

In matrix form:

$$\begin{bmatrix} 10 & -4 \\ -4 & 16 \end{bmatrix} \begin{bmatrix} V_1 \\ V_2 \end{bmatrix} = \begin{bmatrix} 48 \\ 0 \end{bmatrix}$$