

Homework Problem #16

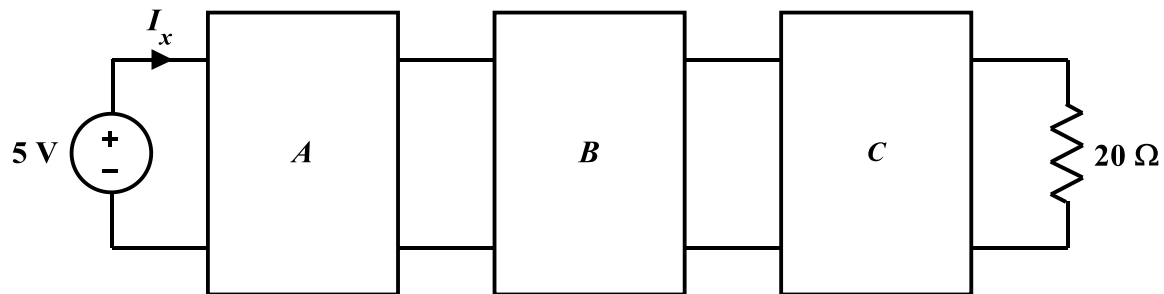
Given three two-port networks described by the following equations:

$$\begin{bmatrix} V_1 \\ I_1 \end{bmatrix}_A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}_A \begin{bmatrix} V_2 \\ -I_2 \end{bmatrix}_A$$

$$\begin{bmatrix} V_1 \\ I_1 \end{bmatrix}_B = \begin{bmatrix} 4 & 1 \\ 3 & 2 \end{bmatrix}_B \begin{bmatrix} V_2 \\ -I_2 \end{bmatrix}_B$$

$$\begin{bmatrix} V_1 \\ I_1 \end{bmatrix}_C = \begin{bmatrix} 3 & 4 \\ 2 & 1 \end{bmatrix}_C \begin{bmatrix} V_2 \\ -I_2 \end{bmatrix}_C$$

that are to be connected together as follows:



determine the value of current I_x .