

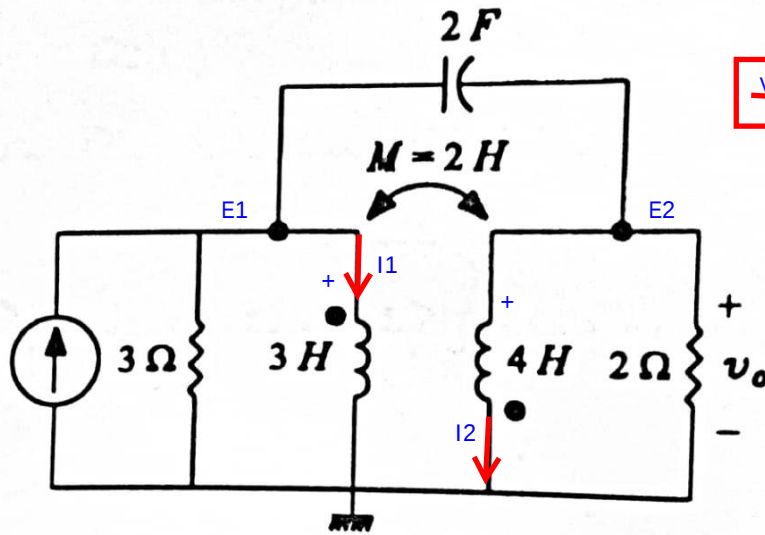
$$Y_n(j\omega) \cdot E = I_s$$

$$\begin{bmatrix} 1/3 + j4 & -j4 \\ -j4 & j4 + 1/2 \end{bmatrix} \begin{bmatrix} E1 \\ E2 \end{bmatrix} = \begin{bmatrix} 3 - I1 \\ -I2 \end{bmatrix}$$

$$\omega = 2$$

$$3 \cos 2t$$

$$I_s = 3$$



$$\underline{V} = (j\omega) \underline{L} \cdot \underline{I}$$

$$I = [I1 \ I2]^t$$

$$V = [V1 \ V2]^t$$

$$V1 = E1$$

$$V2 = E2$$

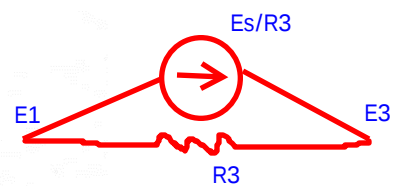
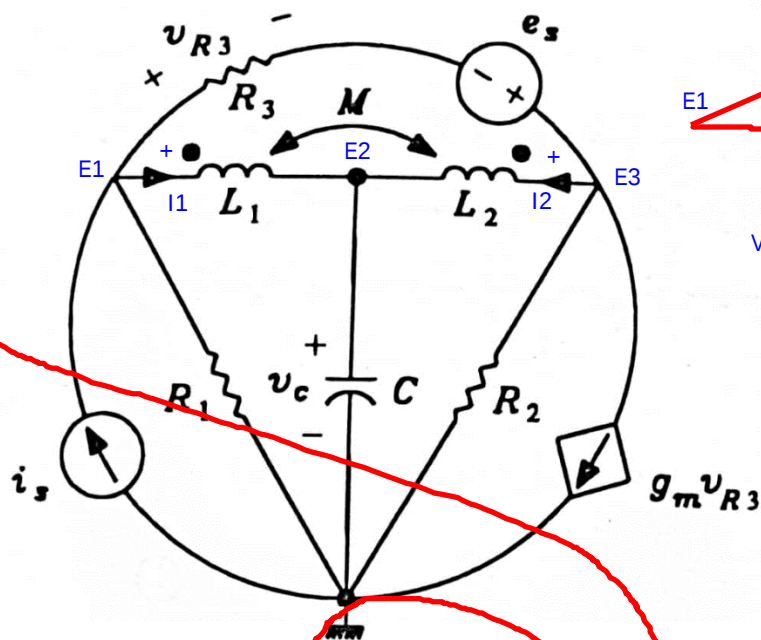
$$\underline{L} = \begin{bmatrix} 3 & -2 \\ -2 & 4 \end{bmatrix}$$

$$\underline{I} = (1/j\omega) \cdot \underline{V}$$

$$\underline{I} = \underline{L}^{-1} \underline{V}$$

$$Y_n(j\omega) \cdot E = I_s$$

$$L = \begin{bmatrix} L_1 & +M \\ +M & L_2 \end{bmatrix} \xrightarrow{-1} \boxed{}$$



$$V_{R3} = (E1 - E3) + E_s$$

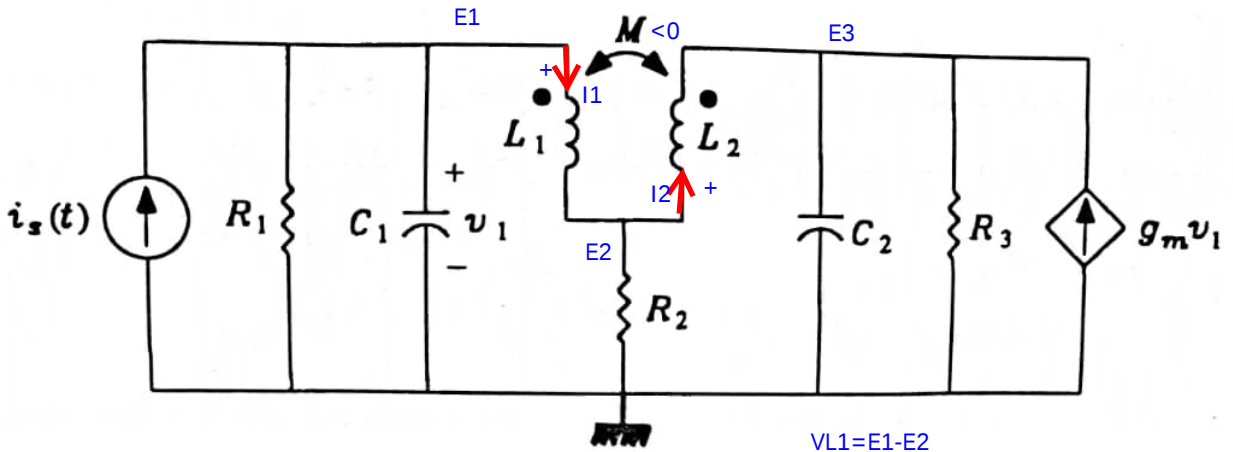
$$I = \begin{bmatrix} I_1 \\ I_2 \end{bmatrix}$$

$$V = \begin{bmatrix} E1 - E2 \\ E3 - E2 \end{bmatrix}$$

$$V = j\omega L I$$

$$\begin{bmatrix} 1/R_1 + 1/R_3 & 0 & -1/R_3 \\ 0 & j\omega C & 0 \\ -1/R_3 & 0 & 1/R_2 + 1/R_3 \end{bmatrix} \begin{bmatrix} E1 \\ E2 \\ E3 \end{bmatrix} = \begin{bmatrix} I_s - E_s/R_3 - I_1 \\ I_1 + I_2 \\ E_s/R_3 - I_2 - g_m V_{R3} \end{bmatrix}$$

$$I = (1/j\omega) \cdot \boxed{} \cdot V$$



$$V_{L1} = E1 - E2$$

$$V_{L2} = E2 - E3$$

$$\begin{bmatrix} 1/R1 + j\omega C1 & 0 & 0 \\ 0 & 1/R2 & 0 \\ 0 & 0 & 1/R3 + j\omega C2 \end{bmatrix} \begin{bmatrix} E1 \\ E2 \\ E3 \end{bmatrix} = \begin{bmatrix} i_s - i1 \\ i1 - i2 \\ i2 + g_m v1 \end{bmatrix}$$