

nodes

$$\frac{A - 10\angle 30}{10j} + \frac{A}{100} + \frac{A - 5\angle 60}{-j50} = 0 \Rightarrow A = 10.68 + j3.83$$

$$V_0 = A - 5\angle 60 = (8.1794 - j0.4976) \text{ Volts}$$

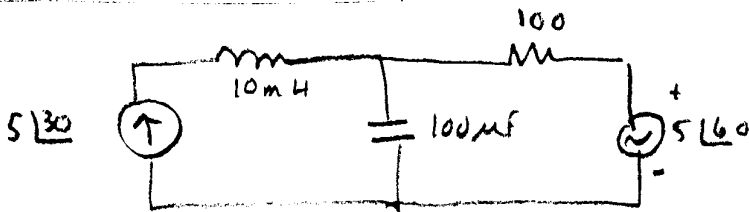
loops

$$\begin{cases} -10\angle 30 + 10j \underline{I}_1 + 100(\underline{I}_1 - \underline{I}_2) = 0 \\ -100(\underline{I}_1 - \underline{I}_2) - j50 \underline{I}_2 + 5\angle 60 = 0 \end{cases} \Rightarrow \begin{bmatrix} 10j+100 & -100 \\ -100 & -j50+100 \end{bmatrix} \begin{bmatrix} \underline{I}_1 \\ \underline{I}_2 \end{bmatrix} = \begin{bmatrix} 10\angle 30 \\ -5\angle 60 \end{bmatrix}$$

$$\underline{I}_2 = (0.01 + j0.1636) \text{ A}$$

$$V = -j50 \underline{I}_2 = (8.1794 - j0.4976) \text{ Volts}$$

2.



note $Z_L = j\omega L = j$
 $Z_C = -j/\omega C = -100j$

nodes

$$-5\angle 30 + A/-100j + \frac{A - 5\angle 60}{100} = 0 \Rightarrow A = (344.9 + j90.6) \text{ V}$$

$$\underline{I} = V/Z = (344.9 + j90.6)/+j100 \Rightarrow \underline{I} = (0.9059 + j3.4492) \text{ A}$$

loops - Right loop only since $\underline{I}_1 = 5\angle 30$

$$-(\underline{I}_1 - \underline{I}_2)(-100j) + 100 \underline{I}_2 + 5\angle 60 = 0 \Rightarrow \underline{I}_2 = (3.42 - j0.95) \text{ A}$$

$$\underline{I}_2 = (\underline{I}_1 - \underline{I}_2) = (0.9059 + j3.4492) \text{ A}$$