$$0 = (8+j8)I_1 + (j2)I_2 - (j10)5 \Rightarrow$$

$$\Rightarrow \boxed{(8+j8)I_1 + (j2)I_2 = j50}$$

$$-j20 = (+j2)I_1 + (4-j4)I_2 + (j2)5 \Rightarrow$$

$$\Rightarrow \boxed{(j2)I_1 + (4-j4)I_2 = -j30}$$

$$0 = (-j10)I_1 + (j2)I_2 + (j8)\cdot 5 \Rightarrow$$

$$\Rightarrow \boxed{(-j10)I_1 + (j2)I_2 = -j40}$$

@ Loop 2

$$I_2 = \frac{-j30 \; - j2\, I_1}{4 - j4}$$

@ Loop 1

$$I_1 = \frac{j50 - j2\, I_2}{8 + j8}$$

$$I_2 = \frac{-j30 - j2\left(\dfrac{j50 - j2\, I_2}{8+j8}\right)}{4-j4} \Rightarrow$$

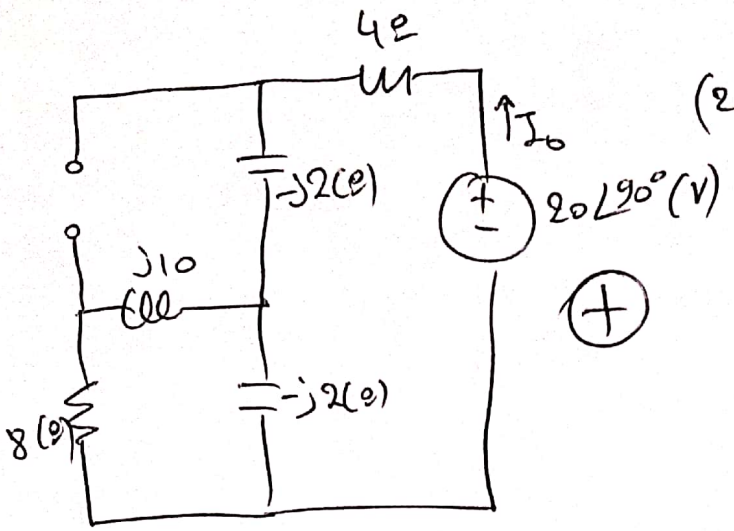
$$\Rightarrow I_2 = \frac{-j30}{4-j4} - \frac{j2\left(\dfrac{j50 - j2\, I_2}{8+j8}\right)}{4-j4} =$$

$$I_2 = \left(\frac{15}{4} - j\frac{15}{4}\right) - j\frac{1}{32}\left(j50 - j2I_2\right) =$$

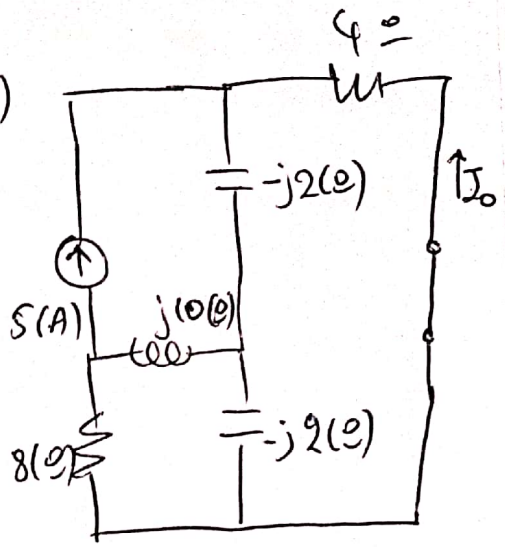
$$= \left(\frac{15}{4} - j\frac{15}{4}\right) + \frac{25}{16} + \left(-\frac{1}{16}\right) I_2 \Rightarrow$$

$$\Rightarrow I_2\left(1 + \frac{1}{16}\right) = \frac{85}{16} - j\frac{15}{4} = 6{,}12\angle -35{,}21^\circ$$

(1)



(2)



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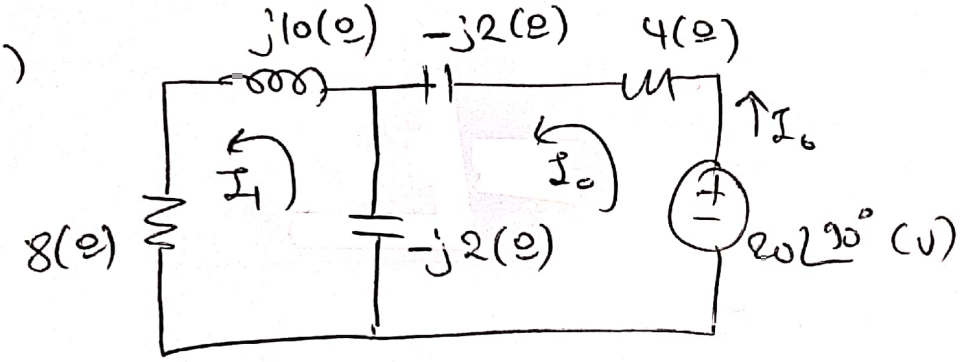
(1)



@ Loop 0 : $j20 = (4-j4)I_o + j2(I_1)$

@ Loop 1 : $0 = +j2I_o + (8+j8)I_1$

$$I_o = \frac{\begin{vmatrix} j20 & j2 \\ 0 & 8+j8 \end{vmatrix}}{\begin{vmatrix} 4-j4 & j2 \\ j2 & 8+j8 \end{vmatrix}} = \frac{(j20)(8+j8)-0}{(4-j4)(8+j8)-(j2)(j2)} = \frac{-160+j160}{64-(-4)} =$$

$$= -\frac{40}{17} + j\frac{40}{17}\ (A) \quad \left\{3.3275\angle 135^\circ\ (A)\right\}$$

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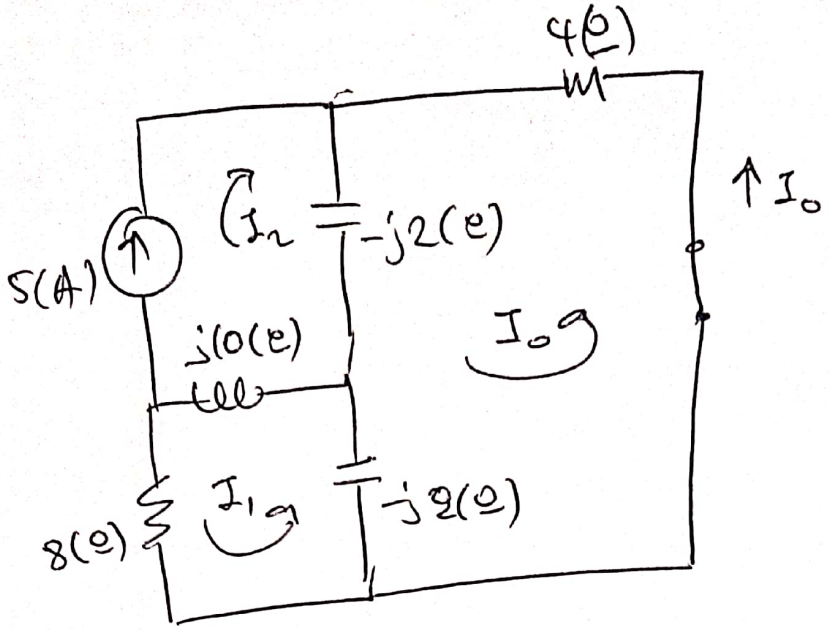
(2)



@ Loop 0 : $0 = (4-j4)I_o + j2I_2 + (-j2)5 \Rightarrow$

$\Rightarrow \boxed{+j10 = (4-j4)I_o + (j2)I_2}$

@ Loop 1 : $0 = (j2)I_o + (8+j8)I_1 + j10.5 \Rightarrow$

$\Rightarrow \boxed{-j50 = (j2)I_o + (8+j8)I_1}$

@ Loop 2 : $0 = (-j2)I_o + j2I_1 + j8.5 \Rightarrow$

$\Rightarrow \boxed{(-j2)I_o + (j2)I_1 = -j40}$

@ Loop 0 : $I_0 = \dfrac{j10 - j2\, I_1}{4 - j4}$

@ Loop 1 : $I_1 = \dfrac{-j50 - j2\, I_0}{8 + j8}$

$$I_0 = \frac{j10 - j2\left(\dfrac{-j50 - j2\, I_0}{8+j8}\right)}{4-j4} =$$

$$= \frac{j10}{4-j4} - \frac{j2}{(4-j4)(8+j8}\left(-j50 - j2\, I_0\right) =$$

$$= \frac{j10}{4-j4} + \frac{j2 \cdot j50}{(4-j4)(8+j8)} + \frac{j2\, j2}{(4-j4)(8+j8)} I_0 =$$

$$= -\frac{5}{4} + j\frac{5}{4} - \frac{25}{16} - \frac{1}{16} I_0 \Rightarrow$$

$$\Rightarrow I_0\left(1 + \frac{1}{16}\right) = -\frac{45}{16} + j\frac{5}{4} \Rightarrow I_0 = -\frac{45}{17} + j\frac{20}{17}$$

$\{2{,}8967 \angle 156{,}037^\circ\ (A)\}$

$$I_o = I_{o(1)} + I_{o(2)} = 6,1\,2013 \angle 144,78^\circ \text{ (A)}$$

or

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