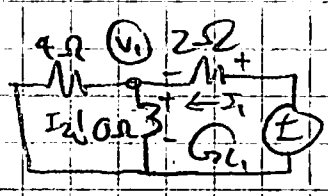


$8V = 8\angle 0$

$\omega = 0$

L_1: $8 - I_1(2) = V_1$ ⇝ Can I treat $j\omega L$ as $j(0)L = 0\Omega$? what happens if $\frac{1}{j\omega C}$? $\frac{1}{0} = \infty\,\Omega$?

$V_1 - I_2(0) = 0$

$V_1 - 0 = 0$

$V_1 = 0$

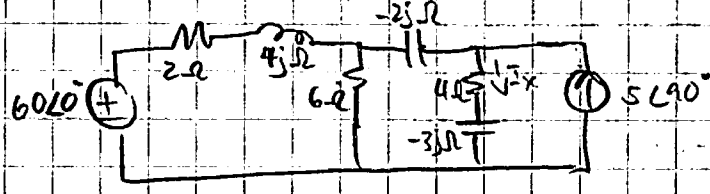
$8 - 2I_1 = 0$

$8 = 2I_1$

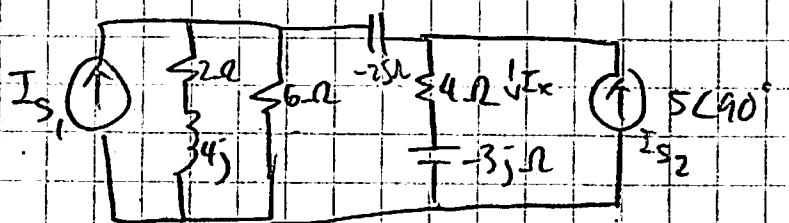
$I_1 = 4A$ ✓ → share diff. frequency

$$\boxed{I_o = 4 + 0.79\angle 288.43\ A}$$

10.52



$2 + 4j = 4.47\angle 63.43$

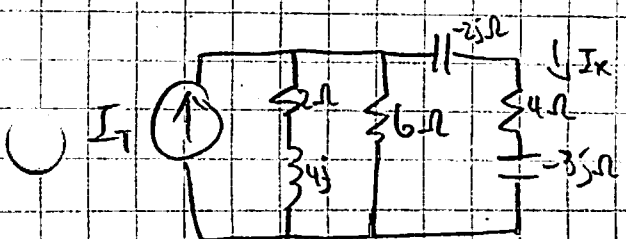


$$I_{s_1} = \frac{60\angle 0}{4.47\angle 63.43} = 13.423\angle 296.57$$ ✓

$I_{s_1} + I_{s_2} = 13.423\angle 296.57 + 5\angle 90$

$= I_T = (6 - 12.01j) + (0 + 5j)$

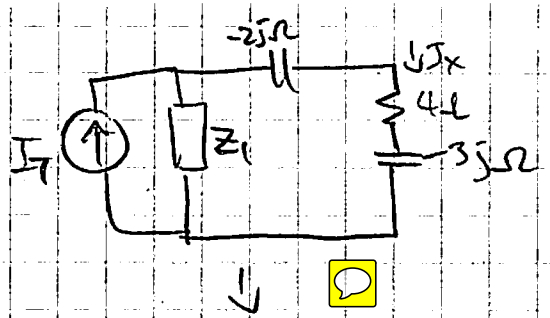
$I_T = 6 - 7.01j$ ✓

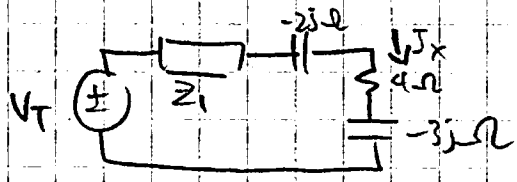


$$\frac{1}{Z_1} = \frac{1}{2+4j} + \frac{1}{6}$$

$$\frac{1}{Z_1} = \frac{6 + 2 + 4j}{6(2+4j)} = \frac{8+4j}{12+24j} = \frac{2+j}{3+6j}$$

$$Z_1 = \frac{12}{5} + \frac{9}{5}j = 3\angle 36.9$$ ✓





$3.46 \angle 2j$

$-1.71 - 4.7j$

$1.75 + (-2.7j)$

$V_T = Z_1 I_T$

$= (3\angle 36.9)(6 - 7.0j)$

$= (3\angle 36.9)(9.23\angle 310.56)$

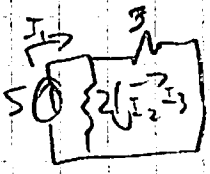
$= 27.69 \angle 347.46$

$$I_x = \frac{V_T}{Z_1 - 2j + 4\Omega + (-3j)}$$

$$I_x = \frac{27.7\angle 347.46}{3\angle 36.9 + 4 - 5j}$$

$$I_x = \frac{22.2\angle 347.46}{2.4 + 1.8j + 4 - 5j} = \frac{27.7\angle 347.46}{6.4 - 3.2j} = \frac{27.7\angle 347.46}{7.16\angle 333.43}$$

$$\boxed{I_x = 3.87 \angle +14.33}$$



$I_1 - I_2 + I_3 = 5$

$\frac{1}{2} + \frac{1}{3} = \frac{1}{n}, \frac{I+2}{6} = \frac{5}{6}$

$2I_2 = 3I_3, I_2 = 5 - I_3$

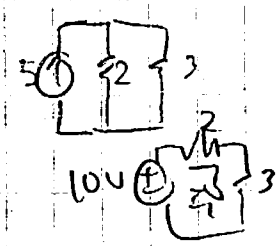
$2(5 - I_3) = 3I_3$

$10 - 2I_3 = 3I_3$

$10 = 5I_3$

$I_3 = 2A$

$I_2 = 3A$



$10 = 5(I_3)$

$I_3 = 2A$