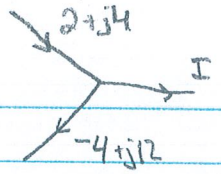
10.5

a)



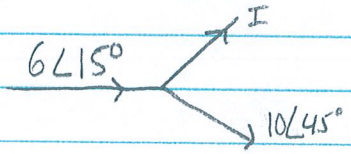
$I = (2+j4) - (-4+j12)$

$= 6 - j8 = 10\,e^{-.127}$

$\omega = 100\pi$

$= 10\cos(100\pi t - 0.927)$ A.

b)



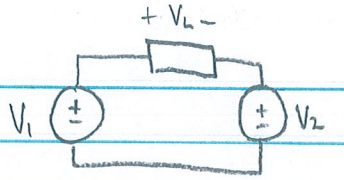
$I = 6\angle 15° - 10\angle 45°$

$= (5.796 + j1.553) - (7.071 + j7.071)$

$= -1.275 - j5.538 = 5.663\angle 103°$

$= 5.663\cos(100\pi t - 1.798)$

10.7



$V_1 = 4\cos\omega t$

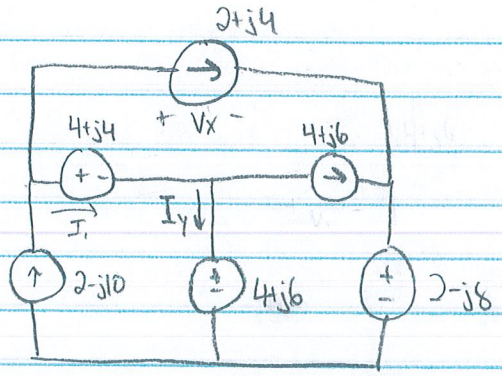
$V_2 = 4\sqrt{2}\cos(\omega t - \pi/4)$

$$V_L = V_1 - V_2 = 4\angle 0 - 4\sqrt{2}\angle +\pi/4 = (4+j0) - (4+j4)$$

$$= -j4 = 4\angle +\pi/2$$

$$= 4\cos(\omega t + \pi/2) \text{ V}$$

10.10



$I_y = I_1 - (4+j6)$ $\quad I_1 = (2-j10) - (2+j4) = -j14$

$$I_y = -4 - j20 = 20.4\angle -101.3°$$

$(4+j6) + (4+j4) - (2-j8) = V_x$

$$V_x = 6 + j18 = 18.97\angle 71.6°$$