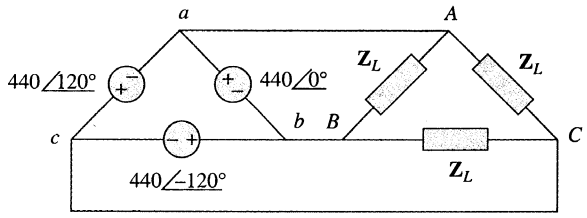
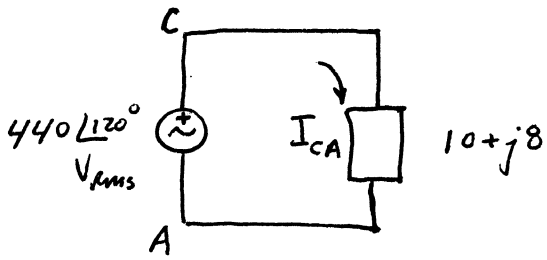
GIVEN:



$$Z_L = 10 + j8\ \Omega$$

FIND: I_{AC} , I_{bB}

SOLN:

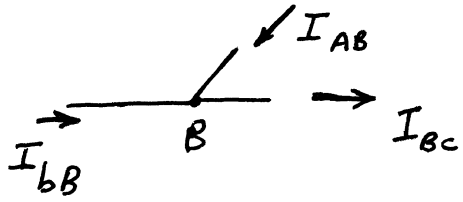


NOTE WE HAVE A POS. SEQ. SYS.

$$I_{CA} = \frac{440\angle 120}{10 + j8} = 34.36\angle 81.34^\circ\ A_{RMS}$$

AND $\therefore$ $I_{AC} = \underline{34.36\angle -98.66^\circ\ A_{RMS}}$

NOW @ B ...



$$I_{bB} + I_{AB} = I_{BC}$$

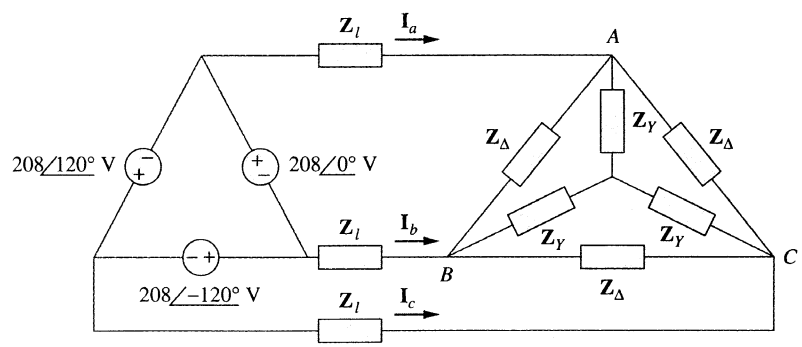
AND $I_{AB} = 34.36\angle -38.66$

$I_{BC} = 34.36\angle -158.66$

$$I_{bB} = \underline{59.513\angle -8.66^\circ\ A_{RMS}}$$

TOPS 35510 - 100 sheets 35520 - 200 sheets

GIVEN:



FIND: I_a, I_b, I_c

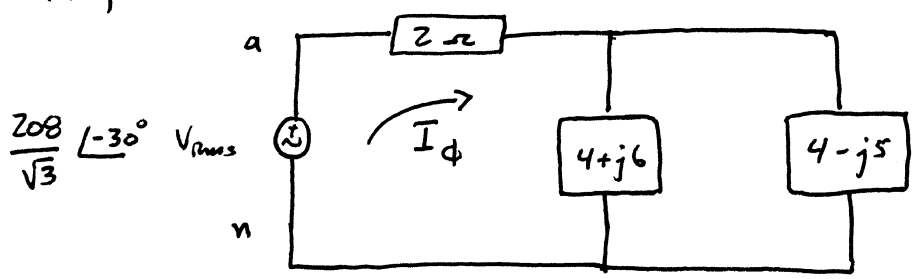
$Z_\Delta = 12 - j15\ \Omega$

$Z_Y = 4 + j6\ \Omega$

$Z_L = 2\Omega$

SOLN: SINCE WE HAVE A MIXED Y-Δ SYS WE CONVERT TO Y EQUIVALENT

THUS,



$I_\phi \Rightarrow$ LINE CURRENT I_a

$$Z_T = 2 + (4+j6)//(4-j5) = 7.723 - j0.215$$

$$I_a = \frac{\frac{208}{\sqrt{3}} \angle -30}{7.723 - j0.215} = 15.543 \angle -28.4°\ A_{Rms}$$

$$I_b = 15.543 \angle -148.4°\ A_{Rms}$$

$$I_c = 15.543 \angle 91.6°\ A_{Rms}$$

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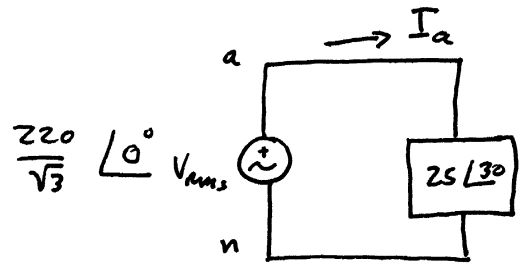
GIVEN: $V_L = 220V$ 60 Hz POS. SEQ.

BALANCED WYE LOAD $Z_Y = 25 \angle 30^\circ \ \Omega$

FIND: I_a, I_b, I_c & ALL PHASE VOLTAGES

SOLN:



WE CHOOSE $\theta_V = 0$ FOR PHASE a ... SO

$$I_a = \frac{\frac{220}{\sqrt{3}} \angle 0}{25 \angle 30} = 5.081 \angle -30^\circ \ A_{RMS}$$

$$V_{an} = 127.02 \angle 0 \ V_{RMS}$$

THEN,

$$I_b = 5.081 \angle -150^\circ \ A_{RMS}$$
$$V_{bn} = 127.02 \angle -120^\circ \ V_{RMS}$$

$$I_c = 5.081 \angle 90^\circ \ A_{RMS}$$
$$V_{cn} = 127.02 \angle 120^\circ \ V_{RMS}$$

TOPS 35510 - 100 sheets 35520 - 200 sheets