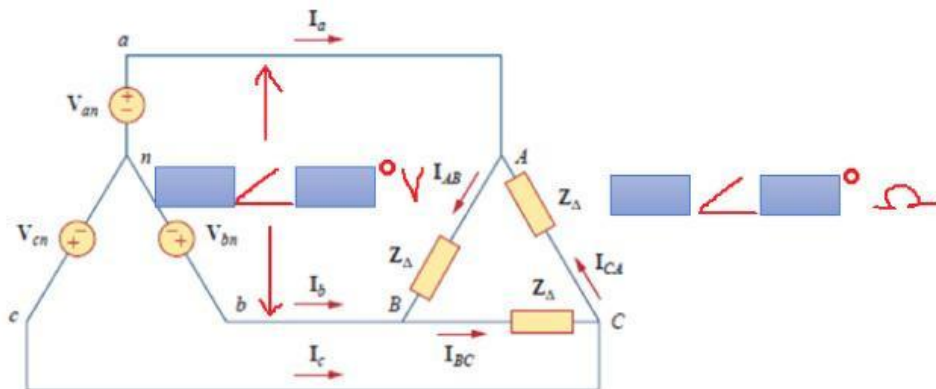


แบบฝึกหัดที่ 33	เรื่อง 3 phase DY(1)	
รหัส 30104-1003	วิชา วงจรไฟฟ้า 2	
ชื่อ-สกุล	ชั้น	เลขที่

1. One line voltage of a balanced Y-connected source is $V_{AB} = 240 \angle -20^\circ$ V. If the source is connected to a Δ -connected load of $20 \angle 40^\circ \Omega$, find the phase and line currents. Assume the abc sequence.

วิธีทำ เขียนเป็นรูปวงจรประกอบการคำนวณได้ดังนี้



หากระแสที่เฟสจากสูตร

$$\begin{aligned}
 I_{AB} &= \frac{V_{AB}}{Z_{\Delta}} \\
 &= \frac{240 \angle -20^\circ}{20 \angle 40^\circ} \\
 &= 12 \angle -60^\circ \text{ A}
 \end{aligned}$$

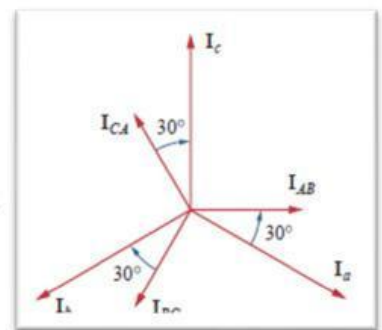
Ans.

$$\begin{aligned}
 I_{BC} &= I_{AB} \angle -120^\circ \\
 &= 12 \angle (-60^\circ - 120^\circ) \\
 &= 12 \angle -180^\circ \text{ A}
 \end{aligned}$$

Ans.

$$\begin{aligned}
 I_{CA} &= I_{AB} \angle -240^\circ \\
 &= 12 \angle (-60^\circ - 240^\circ) \\
 &= 12 \angle -300^\circ \text{ A}
 \end{aligned}$$

Ans.



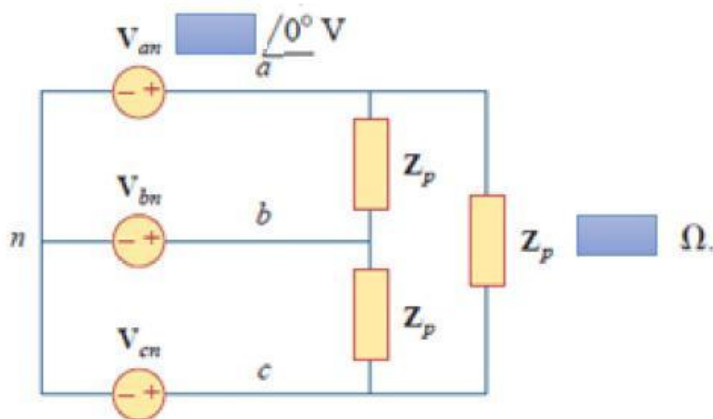
หากระแสที่สายจากสูตร

ดังนั้น $I_a = \sqrt{3} I_{AB} \angle -30^\circ = \sqrt{3} \times 12 \angle -30^\circ = 20.78 \angle -30^\circ \text{ A}$

Ans.

$$\begin{aligned}
 I_b &= \boxed{} \angle \boxed{}^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \text{ Ans.} \\
 I_c &= \boxed{} \angle -240^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \text{ Ans.}
 \end{aligned}$$

2. In the Y-Δ system shown in Fig. 12.44, the source is a positive sequence with $V_{an} = 120 \angle 0^\circ \text{ V}$ and phase impedance $Z_p = 2 - j3 \Omega$. Calculate the line voltage V_L and the line current I_L .

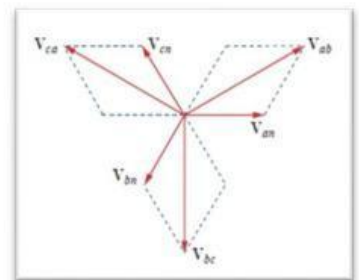


วิธีทำ หาแรงดันที่สายจาก

โจทย์ให้ $V_{an} = V_{\boxed{}} = \boxed{} \angle \boxed{}^\circ \boxed{}$

ดังนั้น $V_L = V_{\boxed{}} = \boxed{} V_{\boxed{}} \angle \boxed{}^\circ$
 $= \boxed{} \boxed{} \boxed{} \angle \boxed{} \boxed{} \boxed{}^\circ$
 $= \boxed{} \angle \boxed{}^\circ \boxed{} \text{ Ans.}$

$$\begin{aligned}
 V_{bc} &= \boxed{} \angle \boxed{}^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \text{ Ans.}
 \end{aligned}$$



$$\begin{aligned}
 V_{ca} &= \boxed{} \angle -240^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \quad \text{Ans.}
 \end{aligned}$$

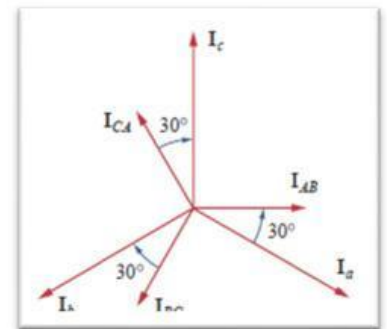
หาคะแสที่สายจาก

$$\begin{aligned}
 I_P &= I_{\boxed{}} = V_{\boxed{}} \boxed{} \boxed{} \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \boxed{} \angle \boxed{}^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{}
 \end{aligned}$$

ดังนั้น $I_L = I_{\boxed{}} = \boxed{} I_{\boxed{}} \angle \boxed{}^\circ$

$$\begin{aligned}
 &= \boxed{} \boxed{} \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \quad \text{Ans.}
 \end{aligned}$$

$$\begin{aligned}
 I_b &= \boxed{} \angle \boxed{}^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \quad \text{Ans.}
 \end{aligned}$$



$$\begin{aligned}
 I_c &= \boxed{} \angle -120^\circ \\
 &= \boxed{} \angle (\boxed{} \boxed{} \boxed{})^\circ \\
 &= \boxed{} \angle \boxed{}^\circ \boxed{} \quad \text{Ans.}
 \end{aligned}$$