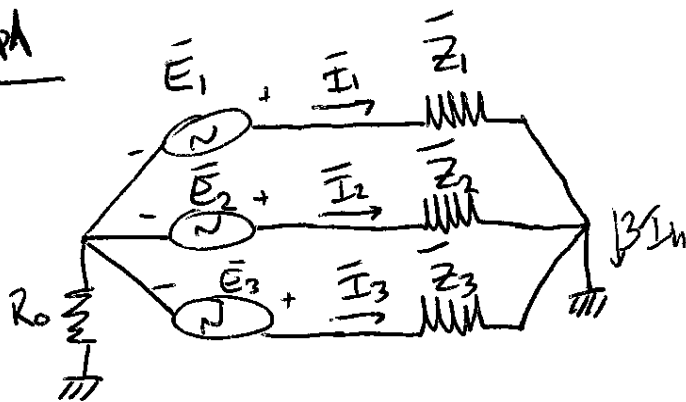


Práctico 2 2021

Ej 2)



$$\begin{cases} \bar{E}_1 = 90 \\ \bar{E}_2 = 2100 \\ \bar{E}_3 = 2100 \end{cases} \xrightarrow{\text{Comp. simétricas}} \begin{cases} \bar{E}_d = 96,67 \text{ V} \\ \bar{E}_i = -3,33 \text{ V} \\ \bar{E}_h = -3,33 \text{ V} \end{cases}$$

$$\begin{cases} \bar{Z}_1 = j3,5 \ \Omega \\ \bar{Z}_2 = j4 \ \Omega \\ \bar{Z}_3 = j4,5 \ \Omega \end{cases} \xrightarrow{\text{Comp. simétricas}} \begin{cases} \bar{Z}_d = -0,25 - 0,144j \ \Omega \\ \bar{Z}_i = -0,25 + 0,144j \ \Omega \\ \bar{Z}_h = 4 \ \Omega \end{cases}$$

Planteo ley de Ohm:

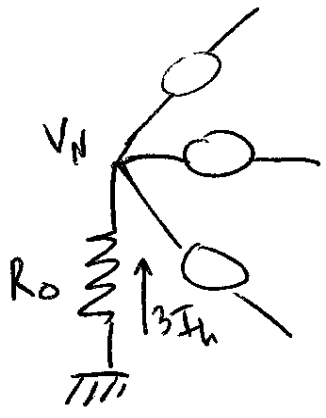
$$\begin{cases} \bar{E}_d = \bar{Z}_h \bar{I}_d + \bar{Z}_i \bar{I}_i + \bar{Z}_d \bar{I}_h \\ \bar{E}_i = \bar{Z}_d \bar{I}_d + \bar{Z}_h \bar{I}_i + \bar{Z}_i \bar{I}_h \\ \bar{E}_h = 3R_0 \bar{I}_h = \bar{Z}_i \bar{I}_d + \bar{Z}_d \bar{I}_i + \bar{Z}_h \bar{I}_h \end{cases}$$

Resolviendo el sistema lineal

$$\begin{cases} \bar{I}_d = 24,27 + j0,018 \\ \bar{I}_i = 0,689 + j0,847 \\ \bar{I}_h = 0,279 + j0,319 \end{cases}$$

$(\bar{I}_d, \bar{I}_i, \bar{I}_h) \rightarrow$  comp. fasices

$$\begin{cases} \bar{I}_1 = 25,24 + j9,546 = 25,2 e^{j1,24} \text{ A} \\ \bar{I}_2 = -12,92 - j21,17 = 24,8 e^{-j121,4} \text{ A} \\ \bar{I}_3 = -11,48 + j19,67 = 22,8 e^{j120,3} \text{ A} \end{cases}$$



$$\bar{V}_N = -3\bar{I}_h R_0 = 2,54 e^{j131,2} \text{ V}$$

$$\bar{S} = \underbrace{3\bar{V}_d \hat{I}_d + 3\bar{V}_i \hat{I}_i + 3\bar{V}_h \hat{I}_h}_{\text{Carga}} + \underbrace{R_0(3I_h)^2}_{\text{Neutro}}$$

$$\bar{S} = 3\hat{E}_d \hat{I}_d + 3\bar{E}_i \hat{I}_i + 3(\bar{E}_h + \bar{V}_N) \hat{I}_h + 9R_0 I_h^2$$

$$\underline{\underline{\bar{S} = 7028 \text{ W}}}$$