

4EV25

2º EXAMEN
2ª PARTE

L-TX-2020

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PROBLEMA

$$Z_0 = 50 + j10$$

$$Z_r = 25 - j100$$

$$f = ?$$

$$Z_n = ?$$

$$V_{SWR} = ?$$

$$\phi = ?$$

PARA PODER ENTRAR A LA CARTA DE SMITH ES NECESARIA LA IMPEDANCIA NORMALIZADA

$$Z_n = \frac{Z_r}{Z_0} = \frac{25 - j100}{50 + j10} = \frac{\sqrt{25^2 + 100^2} \angle \tan^{-1}\left(\frac{-100}{25}\right)}{\sqrt{50^2 + 10^2} \angle \tan^{-1}\left(\frac{+10}{+50}\right)}$$

$$Z_n = \frac{\sqrt{425 + 10000} \angle \tan^{-1}(-4)}{\sqrt{2500 + 100} \angle \tan^{-1}(0.2)} \approx \frac{103.07 \angle -75.96^\circ}{50.99 \angle 11.30^\circ}$$

$$Z_n = 2.02 \angle -64.66^\circ$$

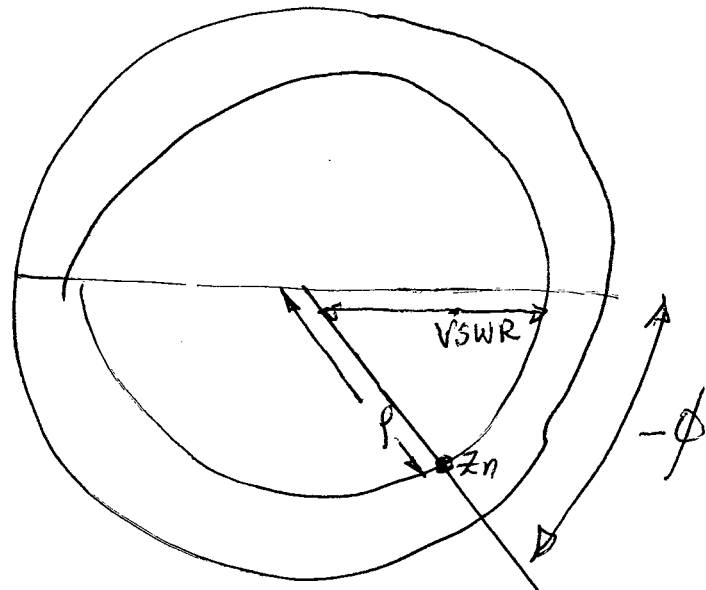
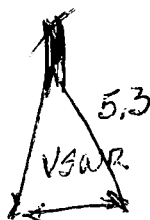
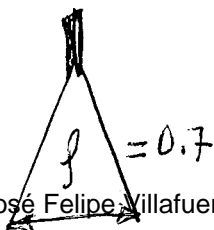
$$Z_n = 2.02 \angle (0.427 - j0.90) = (0.86 - j1.82)$$

$$Z_n = (0.92 - j1.82) \text{ LOCALIZAR}$$

$$f = 0.7$$

$$V_{SWR} = 6.3$$

$$\phi = 52^\circ$$



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2

PROBLEMA

LA CARGA DE LA LÍNEA TELEFÓNICA
ES DE 600Ω , $V_{SWR} = \text{MÁXIMO PERMITIDO}$
PARA TELEFONÍA, CON REFLEJO DE 60°

V_{SWR} } TELEFONÍA
MÁXIMO }

$$V_{SWR} = 1,2$$

CIRCUCE DEL CÍRCULO $V_{SWR} = 1,2$

$$Z_n = 1,05 + j0,2$$

$$Z_r = (Z_0)(Z_n) = (600)(1,05 + j0,2)$$

$$Z_r = 630 + j120 \quad \underline{\underline{\text{CARGA}}}$$

