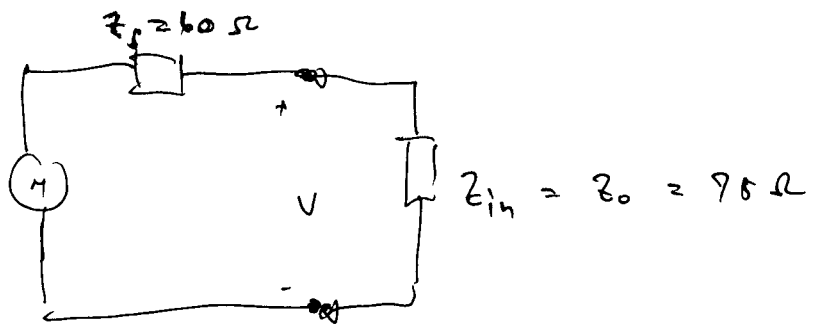




66 (4)



$$\Gamma_{in} = \frac{z_s - z_0}{z_s + z_0} = \frac{60 - 75}{60 + 75} = -0.111$$

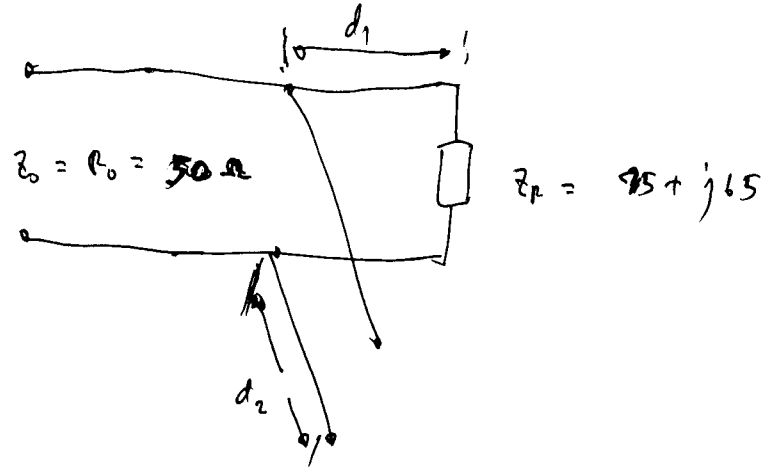
$$\begin{aligned} \text{Return loss (dB)} &= -10 \log |\Gamma_{in}|^2 \\ &= -20 \log |0.111| \\ &= \cancel{19.09} \text{ dB} \quad 19.09 \text{ dB} \end{aligned}$$

$$\begin{aligned} \text{Return loss (Nepers)} &= -\ln |\Gamma_{in}| \\ &= -\ln |0.111| \\ &= 2.198 \text{ Nepers.} \end{aligned}$$

(8)

$$Z_0 = 50 \Omega$$

$$Z_R = 75 + j65 \Omega$$



Admittance

$$Z_r = \frac{Z_R}{Z_0} = \frac{75 + j65}{50} = 1.5 + j1.3$$

$$Y_r = \frac{1}{Z_r} = \frac{1}{1.5 + j1.3} = \frac{1}{1.5 + j1.3} \times \frac{1.5 - j1.3}{1.5 - j1.3}$$

$$Y_r = \frac{1.5 - j1.3}{2.25 - 1.69j + 1.69j + 1.69}$$

$$Y_r = \frac{1.5 - j1.3}{3.94} = 0.38 - j0.329$$

Admittance