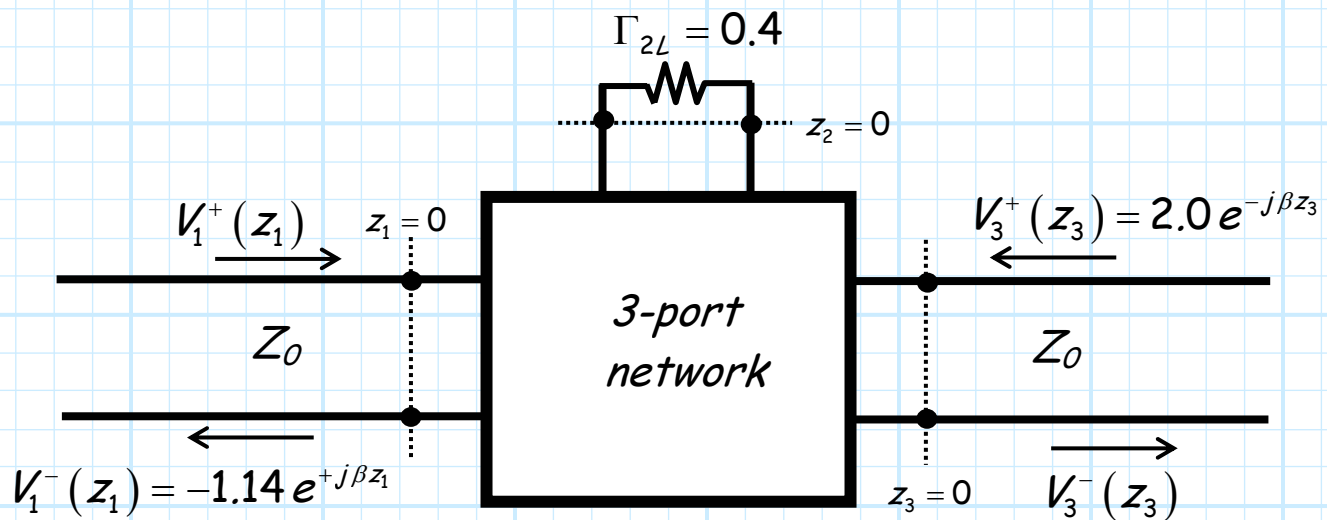


Special Problem 4.3-5

A three-port network is characterized by the scattering matrix:

$$\mathcal{S} = \begin{bmatrix} 0 & 0.3 & -0.6 \\ 0.3 & 0 & 0.1 \\ -0.6 & 0.1 & 0 \end{bmatrix}$$

This device is used in the circuit below. Note the **incident** wave on port 3 and the **exiting** wave on port 1 are explicitly given.



Determine the exiting wave function $V_3^-(z_3)$ and the incident wave function $V_1^+(z_1)$.