Special Problem II.A-36

Consider a three port device with the scattering matrix:

$$\mathbf{S} = \begin{bmatrix} 0 & 0.5 & 0.4 \\ 0.5 & -0.2 & 0.3 \\ 0.4 & 0.3 & 0 \end{bmatrix}$$

Say that ports **1** and **3** of the device are **terminated** in matched loads.

And, the voltage of an **incident** wave on **port 2** has the form:

$$V_2^+(z_2) = 2.0\, e^{-j\beta z_2}$$

A. Determine the **value** of the voltage **at port 3** (i.e., $V_3(z_3 = 0)$).

B. Determine the **value** of the voltage **at port 2** (i.e., $V_2(z_2 = 0)$).