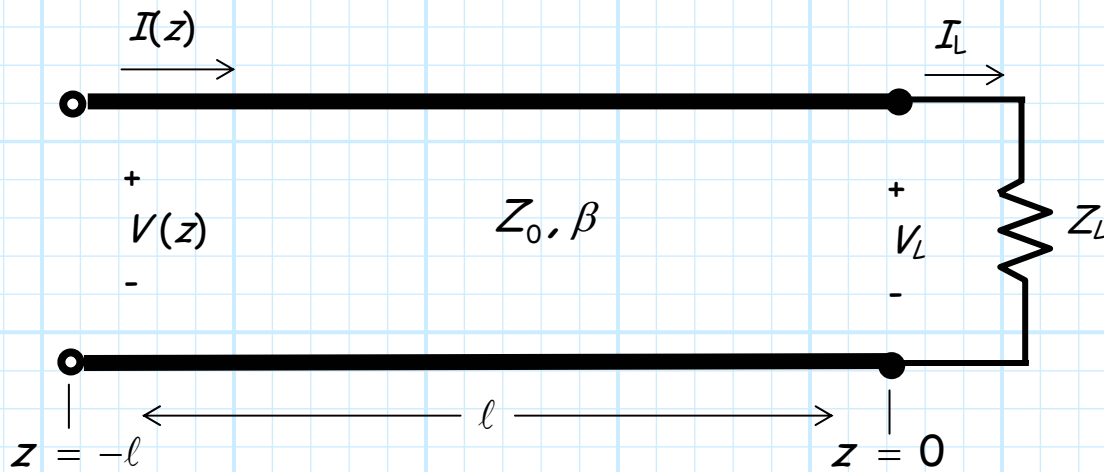


Special Problem 2.B-3

A lossless transmission line is terminated with some unknown load:



The **current** and **voltage** on the transmission line is:

$$V(z) = 5 e^{-j\left(\frac{\pi}{4}\right)z} + e^{j\left(\frac{\pi}{4}\right)z}$$

$$I(z) = 0.05 e^{-j\left(\frac{\pi}{4}\right)z} - 0.01 e^{j\left(\frac{\pi}{4}\right)z}$$

Determine:

1. The **characteristic impedance** of the transmission line.
2. The impedance of the **load**.
3. The **wavelength** of the signal.