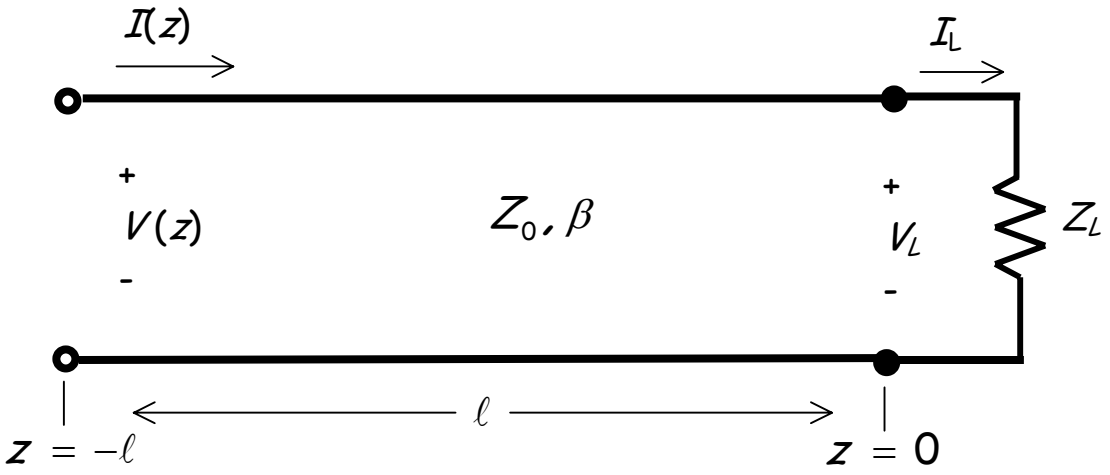
Special Problem II.A-31

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.