Special Problem 2-6.1

In the circuit below, the load Z_L and line length ℓ are **unknown**!

However, we **do** know that the voltage on the transmission line has the form:

$$V(z) = Ae^{-j\beta z} - 0.5e^{+j\beta z}$$

Apply a **boundary condition** (!) at point z=0 (look where this!) and find the value of constant A.

What is the **input impedance** (at z=0) of this transmission line?