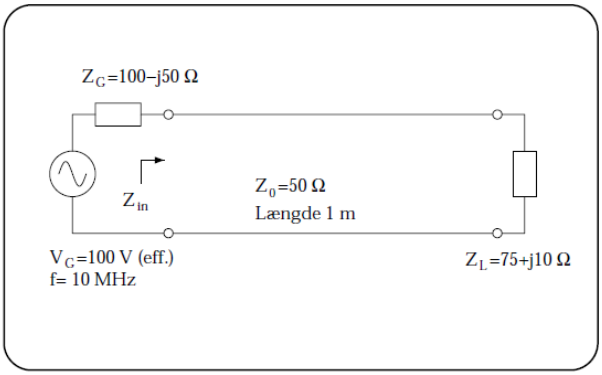
Exercise 10.1

Calculate the following quantities for the setup shown in the figure below, and provide them with the correct units. The cable is 1 m long. It is lossless, and the phase propagation constant is 1.5 π rad/m.



a. Calculate KL in polar form.

b. Calculate the reflection coefficient K(-l) in polar form.

c. Calculate the input impedance Zin in rectangular form.

d. Calculate the voltage at the input of the cable.

e. Calculate the current flowing into the cable.

f. Now, remove the generator including the generator impedance. Calculate which component should be connected at the input of the cable to make the impedance purely real.