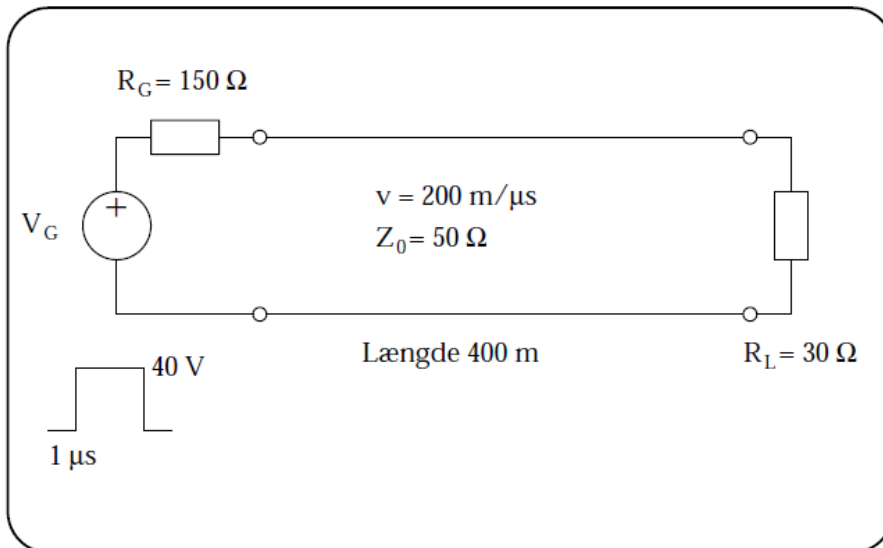


Exercise 7.1

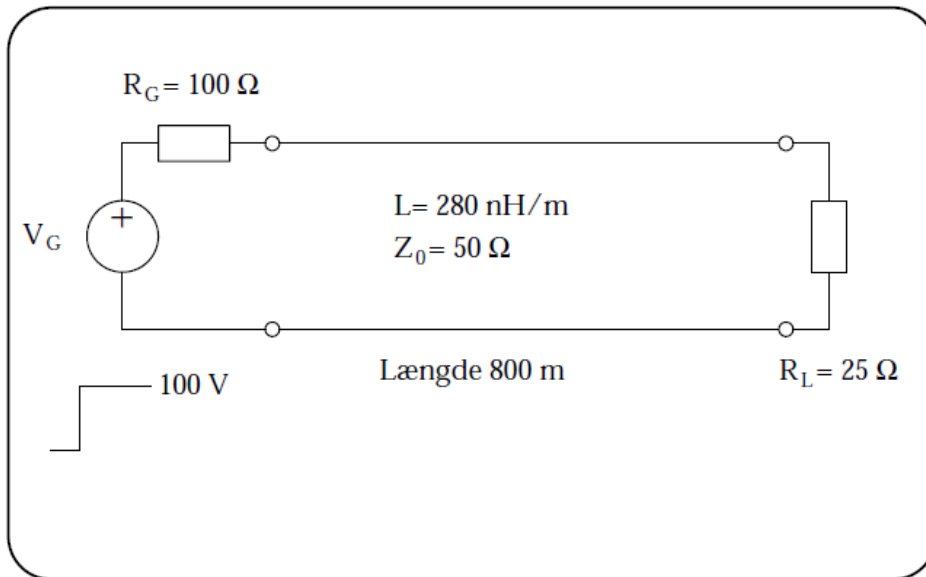
In the transmission line setup shown in the figure, the generator provides a voltage pulse of 40 V with a duration of 1 μs . The cable is lossless and has a characteristic impedance of 50 Ω . The generator resistance is 150 Ω , and the load resistance is 30 Ω as shown in the figure below.



- Determine the reflection coefficients K_L and K_G , as well as the amplitude of the first incident voltage pulse, V^+ .
- Draw a reflection diagram for the voltage on the cable. The diagram should be normalized with respect to V^+ and the axes should be labeled with the values for time and distance. The diagram should include 3 incident and 3 reflected signals, each represented by the normalized voltage.
- Draw the resulting waveform for the voltage immediately to the right of the generator resistance.

Exercise 7.2

In the setup shown below, the generator provides a step function of 100 V. Solve the exercise using a reflection diagram that includes 2 incident and 2 reflected waves.



- Sketch the voltage waveform immediately to the right of the generator resistance.
- Sketch the voltage waveform immediately to the left of the load resistance.
- Sketch the voltage waveform in the middle of the cable.
- What will be the final value of the voltage at the three locations?