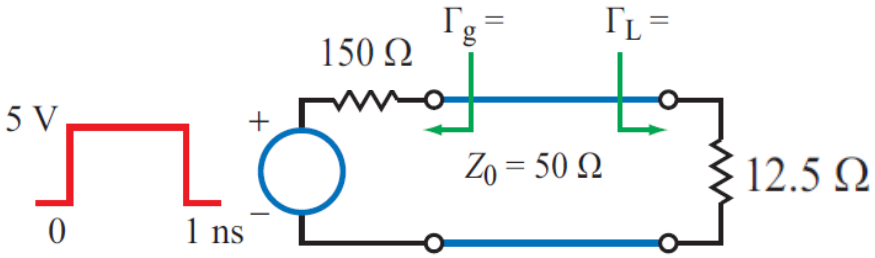
HW8 due to 11/30 (submit online at NTUCOOL before 9 am)

1. (a)(example 2-15) The transmission-line circuit is excited by a rectangular pulse of duration $\tau = 1$ ns that stats at $t = 0$. Establish the waveform of the voltage response at the load, given that the pulse amplitude is 5 V, the phase velocity is c, and the length of the line is 0.6 m. (b) Use ADS to verify your answers. In addition, plot the waveform at the terminal between 150 ohms and the transmission line indicating the initial pulse entering the transmission line.



(a) Pulse circuit

2. Fine the input impedance and input reflection coefficient via (a) analytical method and (b) ADS. The operation frequency is at 10 GHz. The spectrum is from 1 GHz to 20 GHz.