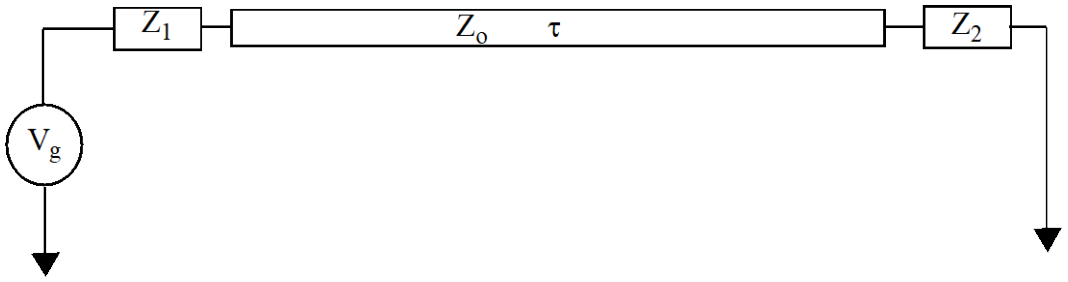
ECE 546 HOMEWORK No 3 - Due Friday, February 27, 2026

SOLUTIONS

1. Using the **geometric series** approach, write a computer program that simulates the response at any location along a lossless transmission line terminated with linear resistive loads. Test your program using the example shown below. Use Z_o = 50 Ω, l = 0.35m, Z_1 = 25 Ω, Z_2 =50 kΩ. Show plots of the pulse response at the middle of the line. Give a listing of your program.



The pulse characteristics for $V_g(t)$ are as shown in the figure below, with

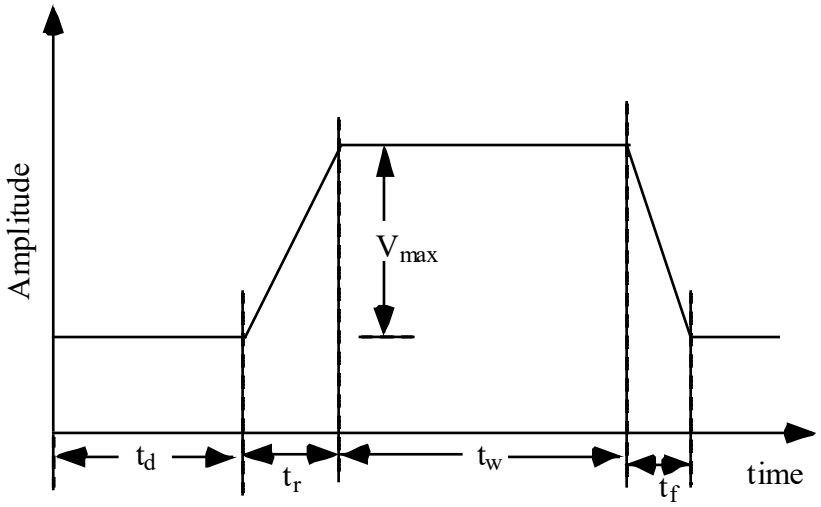
time delay: t_d = 1 ns

rise time: t_r = 1 ns

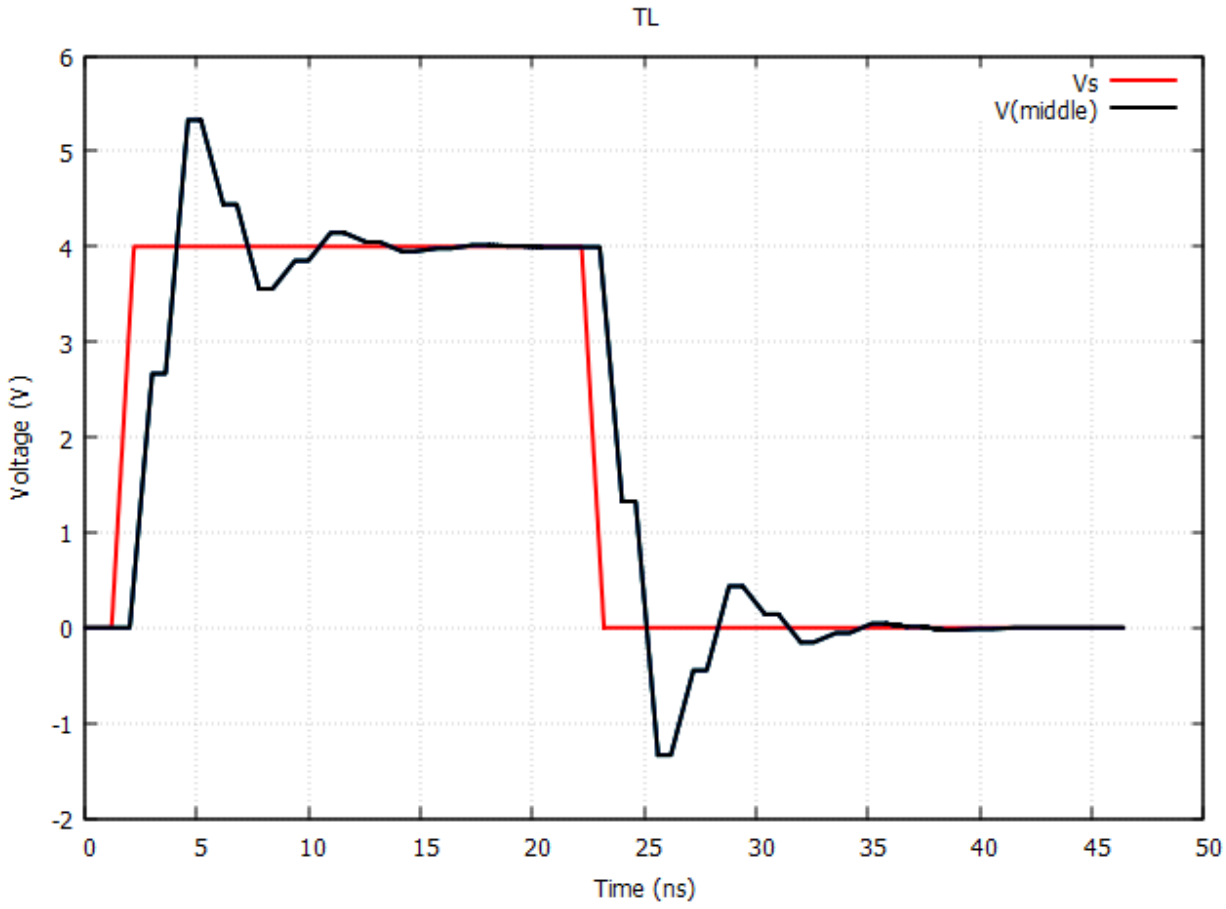
fall time: t_f = 1 ns

pulse width: t_w = 20 ns

pulse amplitude: V_{max} = 4 volts



SOLUTION


TL
Vs
V(middle)
Voltage (V)
Time (ns)
6
5
4
3
2
1
0
-1
-2
0
5
10
15
20
25
30
35
40
45
50