

Set #2

Due Tuesday September 23, 2025

Problems:

1. Text problem 2.6.
2. Text problem 2.9a. Answer in back of book, but you need to show the steps in getting the answers. Feel free to check your analytical solution at a few points using Jupyter notebook. Both the impulse response and step response can be worked using classical methods or Fourier transform methods. For the step response note that for LTI system the impulse and step are related by an accumulator operation, hence

$$y_s[n] = h[n] * u[n] = \sum_{k=0}^n h[k]$$

The sum from the above is once again a geometric series.

3. Text problem 2.36. Assume the system is causal.
4. Text problem 2.54.
5. Bonus Problem for 10 points: Text problem 2.56.
6. Text problem 2.58. Use a Python Jupyter notebook, wxMaxima, etc, for the plots of part (d).