

Homework 2

Problem 2.1 Derive equation 1.33 from the Week 2 set of notes.

Problem 2.2 Calculate and sketch the function given by $\Pi\left(\frac{t}{T_1}\right) * \Pi\left(\frac{t}{T_2}\right)$. What does the Fourier amplitude spectrum look like?

Problem 2.3 Derive the response of an SDOF to ground motion described by

$$U(t) = \begin{cases} 0, & t < 0 \\ \frac{t}{T_1}, & 0 < t < T_1 \\ 1, & t > T_1 \end{cases}$$