Problem 1. Classify the following signals as power or energy signals

(a) \[ x(t) = \begin{cases} 5 & \text{for } -2 \leq t \leq 2 \\ 0 & \text{otherwise} \end{cases} \]

(b) \[ z(t) = \sum_{k=-\infty}^{\infty} x(t - 8k), \]
where \( x(t) \) is defined in part (a).

Hint: \( z(t) \) is a periodic signal with the fundamental period 8.

(c) \[ x[k] = \begin{cases} e^{-0.5k} & \text{for } k \geq 0 \\ 0 & \text{for } k < 0 \end{cases} \]

Problem 2. Express the following continuous time signal as a combination of an even signal and an odd signal

\[ x(t) = \begin{cases} t & \text{for } 0 \leq t < 1 \\ 0 & \text{elsewhere} \end{cases} \]

Plot the even and odd components.


Problem 5. Oppenheim & Willsky, problem 1.25 a, c, f.

Problem 6. Oppenheim & Willsky, problem 1.26 a, b, c, d.

Problem 7. Oppenheim & Willsky, problem 1.21 c, d.

Problem 8. Oppenheim & Willsky, problem 1.22 b, d.