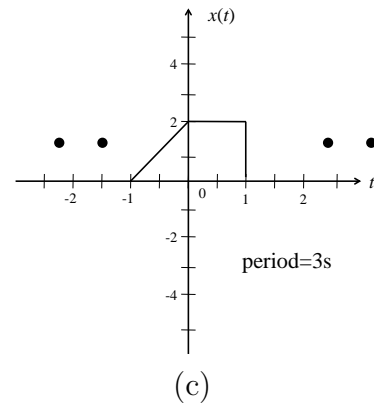
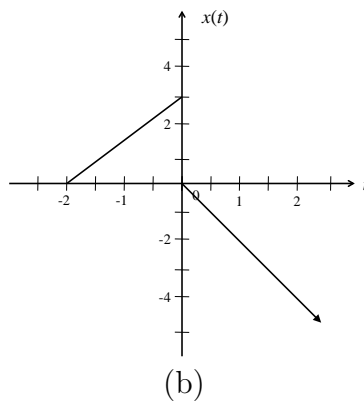
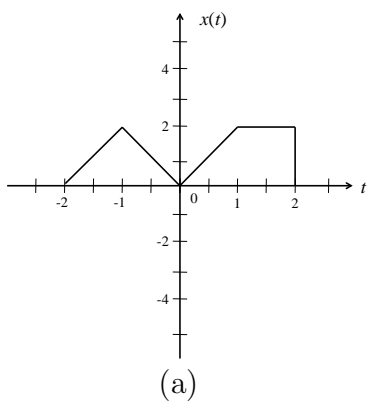


ECE 302 - Linear System Analysis

Homework #1

Due Date: September 3, 2025

1. **Size of a Signal:** For each signal $x(t)$ shown below, compute its: (i) norm $\|x\|$, (ii) energy E_x , (iii) average power P_x .



2. **Signal Type:** Classify each signal in Problem 1 as either an energy signal, a power signal, or neither.
3. **Signal Operations:** Sketch and numerically label the following signals:
- (a) $x_a(t) = -t$
 - (b) $x_b(t) = x_a(-t + 1)$
 - (c) $x_c(t) = 2x_b(t) + 1$
4. **Complex Plane:** For each complex number below, plot its location in the complex plane.
- (a) $2 - j$
 - (b) $-1 + 3j$
 - (c) $2e^{-j7\pi/2}$
 - (d) $e^{j\frac{3\pi}{4}}$.

Remark: Read Appendix B.1 in your text for a review of complex numbers.