EE 311 Homework # 1.   (Fall 2021)

Problems from textbook:

P 1.1, P 1.4, P. 1.5, P. 1.11

Section 1-1: Types of Signals

1.1   Is each of these 1-D signals:

- Analog or digital?
- Continuous-time or discrete-time?

(a) Daily closes of the stock market
(b) Output from phonograph-record pickup
(c) Output from compact-disc pickup

1.4   Given the waveform of $x_1(t)$ shown in **Fig. P1.4(a)**, generate and plot the waveform of:
(a) $x_1(-2t)$
(b) $x_1[-2(t-1)]$

Figure P1.4: Waveforms for Problems 1.4 to 1.7.
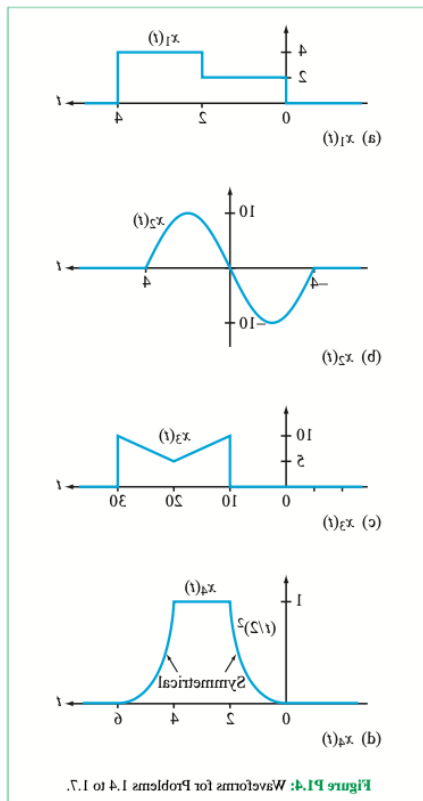
1.5 Given the waveform of $x_2(t)$ shown in **Fig. P1.4(b)**, generate and plot the waveform of:
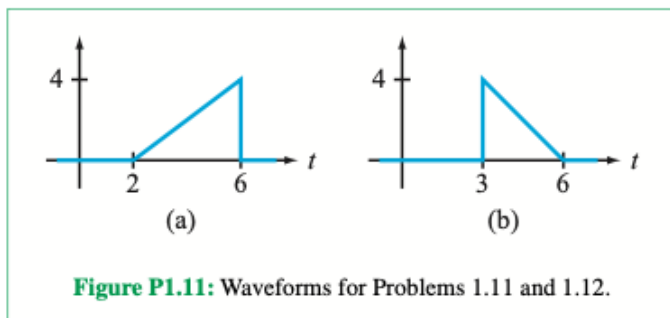
   (a) $x_2[-(t+2)/2]$

   (b) $x_2[-(t-2)/2]$

1.11 Given the waveform of $x(t)$ shown in **Fig. P1.11(a)**, generate and plot the waveform of:

   (a) $x(2t+6)$

*(b) $x(-2t+6)$

   (c) $x(-2t-6)$

Figure P1.11: Waveforms for Problems 1.11 and 1.12.

Exercise B-1: Express the following complex functions in polar form:

$$\mathbf{z}_1 = (4-j3)^2,$$

$$\mathbf{z}_2 = (4-j3)^{1/2}.$$

Show that $\sqrt{2j} = \pm(1+j)$.