

Arab Academy for Science and Technology & Maritime Transport College of Engineering & Technology

Electronics and Communications Dep. 5th term Electronics & Communications EC321- Communication Theory

Lecturer: Prof. Ehab F. Badran - Dr. Mohamed Tamazin GTA: Eng. Alaa Allah El Sabaa – Eng. Saji Alaa Eldeen Ali

Sheet # 2

- 1. The signals in Figure 1 are zero except as shown.
 - i. For the signal x(t) of Figure 1, plot;
 - a) x (-t/3)
 - b) x (3t 6)
 - c) x(3+t)
 - d) x(2-t)
 - ii. For the signal x(t) of Figure 1, plot;
 - a) 4x(t) 2
 - b) 2x(t) + 2
 - c) 2x(2t) + 2
 - d) -4x(t) + 2

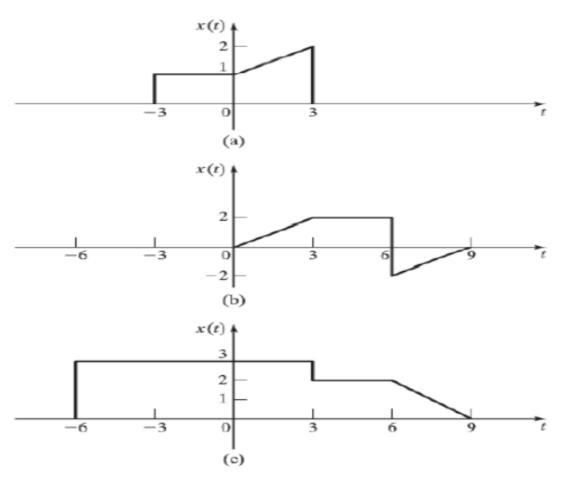


Figure 1

- 2. Given the two signals in figure 2
 - a) Express $x_2(t)$ as a function of $x_1(t)$
 - b) Verify your results by checking at least three points in time

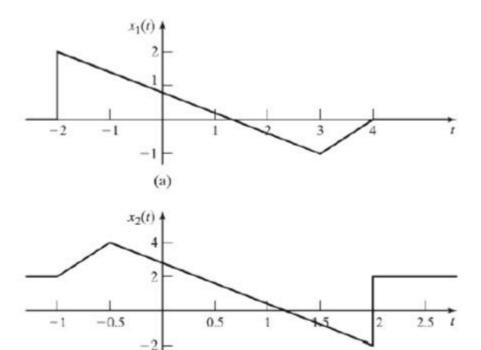


Figure 2

(b)

- 3. For each of the signals given, determine mathematically if the signal is even, odd, or neither?
 - a) x(t) = -4t
 - b) $x(t) = e^{-|t|}$
 - c) $x(t) = 5 \cos(3t)$
 - $d) x(t) = sin (3t + \frac{3\pi}{2})$
 - e) x(t) = u(t) u(-t)
 - f) x(t) = -u(t-1) + u(-t-1)