

# ECE 113 HW 2

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## Problem 1

(a)

$$x_{1_{even}}[n] = \frac{u(n-3) + u(-(n+3))}{2}$$
$$x_{1_{odd}}[n] = \frac{u(n-3) - u(-(n+3))}{2}$$

(b)

$$x_{2_{even}}[n] = \frac{\alpha^n u[n-1] + \alpha^{-n} u[-(n+1)]}{2}$$
$$x_{2_{odd}}[n] = \frac{\alpha^n u[n-1] - \alpha^{-n} u[-(n+1)]}{2}$$

(c)

$$x_{3_{even}}[n] = \frac{n\alpha^n u[n-1] - n\alpha^{-n} u[-(n+1)]}{2}$$

$$x_{2_{even}}[n] = \frac{\alpha^n u[n-1] + n\alpha^{-n} u[-(n+1)]}{2}$$

**(d)**

$$\begin{aligned} x_{4_{even}}[n] &= x_4[n] = \alpha^{|n|} \\ x_{4_{odd}}[n] &= 0 \end{aligned}$$