EE-125 Lecture 3 Assignment

Due Monday, Sept 18

Proakis & Manolakis,Chapter 3

Problems:

3.1, parts a and b

3.3 (hint: think about z-transform properties. Also, review book on how ROC can change - for example, under time-shift or time-reversal)

3.1 Determine the z-transform of the following signals.

(a) $x(n) = \{3, 0, 0, 0, 0, \underset{\uparrow}{6}, 1, -4\}$

(b) $x(n) = \begin{cases} (\frac{1}{2})^n, & n \geq 5 \\ 0, & n \leq 4 \end{cases}$

3.3 Determine the z-transforms and sketch the ROC of the following signals.

(a) $x_1(n) = \begin{cases} (\frac{1}{3})^n, & n \geq 0 \\ (\frac{1}{2})^{-n}, & n < 0 \end{cases}$

(b) $x_2(n) = \begin{cases} (\frac{1}{3})^n - 2^n, & n \geq 0 \\ 0, & n < 0 \end{cases}$

(c) $x_3(n) = x_1(n+4)$

(d) $x_4(n) = x_1(-n)$