

Find the Z-transform for the following signals

1.  $x_1[n] = (0.4)^n u[n]$ . Also, find the ROC.
2.  $x_2[n] = (-0.6)^n u[n]$ . Also, find the ROC.
3.  $x_3[n] = (0.3)^n u[n-4]$
4.  $x_4[n] = 5\delta[n-2]$ . Also, find the ROC.
5. Write the following polynomial in each of the four notational forms in the handout (ie unfactored/factored polynomial in  $z/z^{-1}$ ):

$$X(z) = \frac{6z^3 + 2z^2}{(z^2 - 6z + 8)(z + 1)}$$