CPE 3500 Homework-6

1. Use the Fourier transform analysis equation to calculate the Fourier transforms of:

   a) $\left(\frac{1}{2}\right)^{n-1} u[n-1]$
   b) $\left(\frac{1}{2}\right)^{|n-1|}$

2. Use the Fourier transform analysis equation to calculate the Fourier transforms of:
   a) $\delta[n-1] + \delta[n+1]$
   b) $\delta[n+2] + \delta[n-2]$

3. Given that x[n] has the Fourier transform $X(e^{j\omega})$, using the Fourier transform properties express the Fourier transforms of the signals listed below in terms of $X(e^{j\omega})$.

   a) $x_1[n] = x[1-n] + x[-1-n]$
   b) $x_2[n] = x(n-3)$
   c) $x_3[n] = (n-1)^2 x[n]$