Discrete-Time Convolution:

1. Find the impulse response for each of the following discrete-time systems:
   a) $y[n] + 0.2y[n-1] = x[n]-x[n-1]$
   b) $y[n] + 1.2y[n-1] = 2x[n-1]$
   c) $y[n] = 0.24(x[n]+x[n-1]+x[n-2]+x[n-3])$
   d) $y[n] = x[n] + 0.5x[n-1] + x[n-2]$

2. Perform the following convolutions, $x[n] * v[n]$
   a) $x[n] = u[n] - u[n-4], \ v[n] = 0.5^n u[n]$
   b) $x[n] = [1 \ 4 \ 8 \ 2]; \ v[n] = [0 \ 1 \ 2 \ 3 \ 4]$ (the sequences both start at $n=0$)
   c) $x[n] = u[n], \ v[n] = 2(0.8)^n u[n]$
   d) $x[n] = u[n-1], \ v[n] = 2(0.5)^n u[n]$