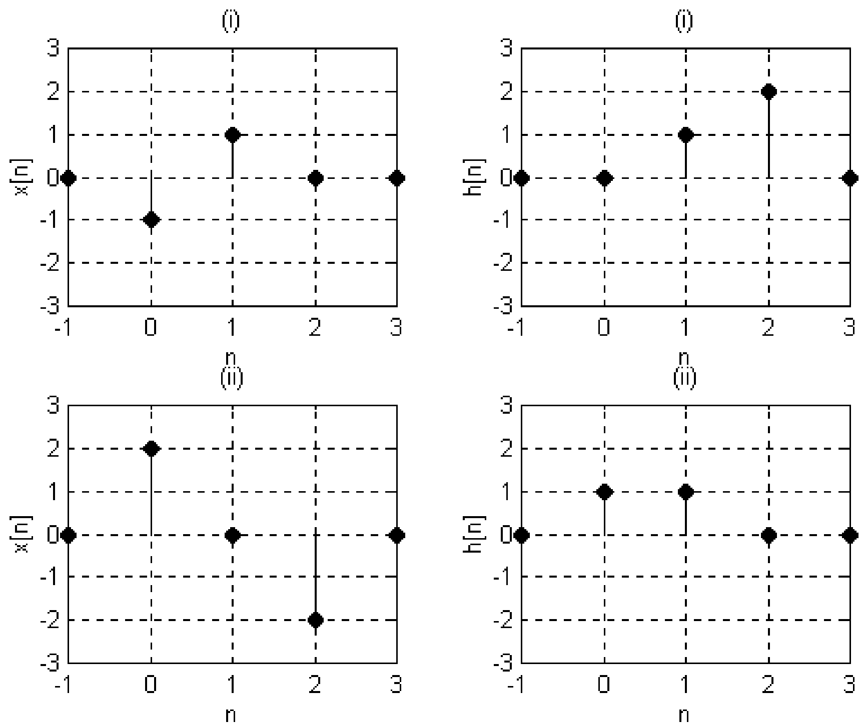
1. Consider the discrete-time system described by the following difference equation with y[n] the output and x[n] the input.

$$y[n+1]+2y[n]=x[n]$$

a) Compute the unit-pulse response h[n] for n = 0, 1, 2, 3.
b) Determine a closed form expression for h[n].

2. Consider the following discrete-time signal pairs x[n], h[n] shown. For each pair
a) Compute and sketch y[n] = x[n]*h[n] by hand.
b) Compute and sketch y[n] = x[n]*h[n] using matlab and *conv()*.



3. Determine y[n]=x[n]*h[n] in closed form for the x[n], h[n] given below.
a) $x[n] = u[n]$, $h[n] = (0.5)^n u[n]$
b) $x[n] = u[n]$, $h[n] = 3^n u[n]$
c) $x[n] = (0.5)^n u[n]$, $h[n] = (0.25)^n u[n]$

4. Problem 3.7a,b,c

5. Problem 3.11

6. Problem 3.13 (use comments in problem 3.7 to plot valid results for $0 \le n \le 20$)