Homework No. 2

Due 10:10 am, 4/3 , 2007

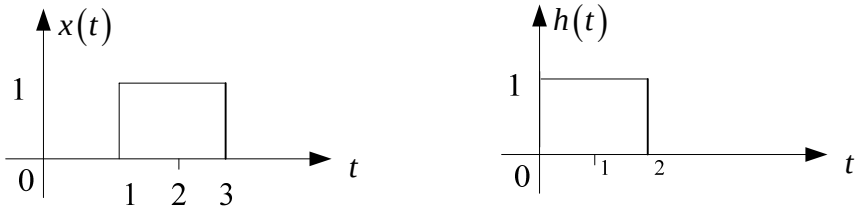
1.

Evaluate the convolution integral with input *x(t)* and impulse response *h(t)*, respectively, given by

$$x(t) = u(t-1) - u(t-3)$$

and

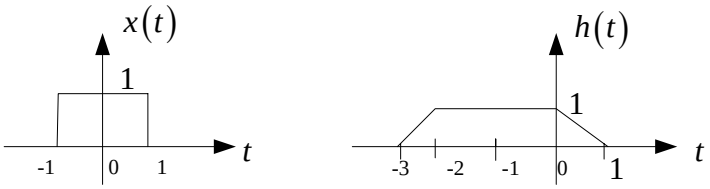
$$h(t) = u(t) - u(t-2)$$



2.

Let the input of an LTI system with impulse response *h(t)* be given in Fig

Find the output *y(t)*



3.

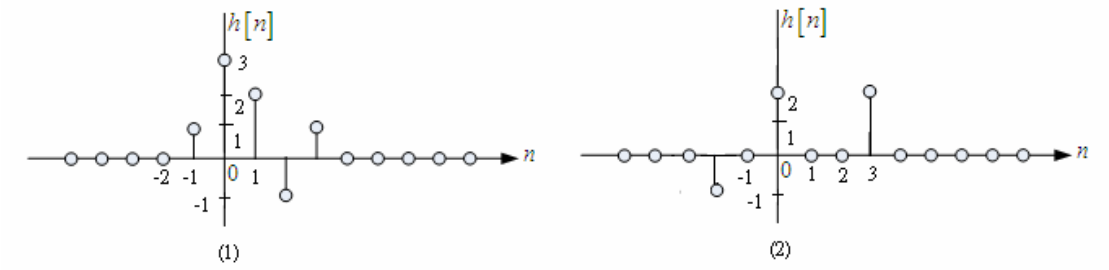
A discrete-time LTI system has impulse response h[n] depicted in Fig(1).

Use linearity and time invariance to determine the system output y[n] if the input is

(a) $x[n] = 3\delta[n] - 2\delta[n-1]$

(b) $x[n] = u[n+1] - u[n-3]$

(c) as given in Fig(2)



4.

Evaluate the following discrete-time convolution sums;

$(a)\, y[n] = u[n+3] * u[n-3]$

$(b)\, y[n] = \cos(\frac{\pi}{2} n) u[n] * u[n-1]$