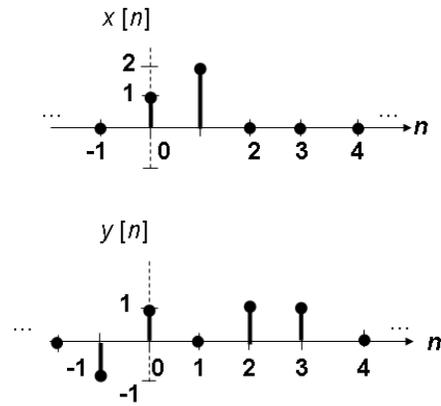


Name: _____

EE322 Fall 2012 Discrete Convolution Worksheet

1. Evaluate the convolution of $z[n] = x[n]*y[n]$, given plots of $x[n]$ and $y[n]$ as shown to the right:



2. Find the impulse response of a system that can be described by the difference equation:

$$y[n] = 3x[n+1] - 2x[n] + x[n-2].$$

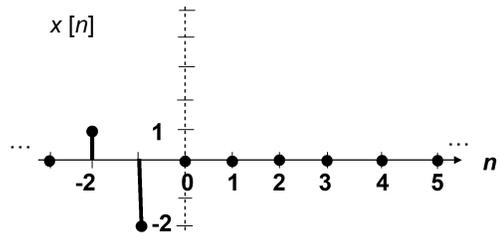
Recall that finding the impulse response involves setting the input to be a unit impulse and monitoring the output.

Is this system BIBO stable?

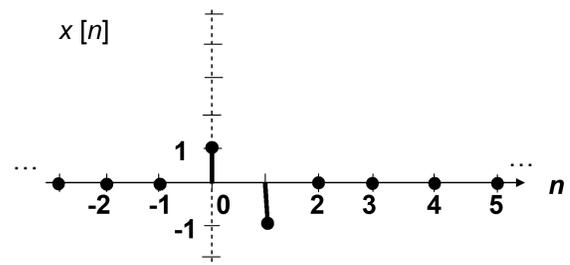
3. Using a table, find the impulse response of a system that can be described by the difference equation:
 $y[n] = x[n] - 1.1y[n-1]$. Write your answer in a closed form expression.

Is this system BIBO stable?

4. Evaluate the convolution
 $y[n] = x[n] * u[n]$, given $x[n]$ as in the figure to the right, and $u[n]$ the unit step function.



4. Evaluate the convolution
 $y[n] = x[n] * \text{ramp}[n]$, given $x[n]$ as in the figure to the right, and $\text{ramp}[n]$ the unit ramp function.



6. Evaluate the convolution $y[n] = (u[n-4] - u[n-9]) * (\delta[n+2] + 0.5\delta[n] + 0.25\delta[n-1] - 0.75\delta[n-2])$.