

## ECE 312 HW #5

This is a MATLAB homework problem. (That means you must use MATLAB to do the plots.)

Consider the discrete time system

$$y[n] + 0.5y[n-1] = -3x[n] + 2x[n-1]$$

with  $y[0] = -3$  and  $y[n]$  causal.

1. Plot the impulse response for  $n = 0, 1, \dots, 15$
2. Plot the unit step response (i.e.,  $x[n] = u[n]$ ) for  $n=0,1,\dots,15$

Note: You can create stem plots in MATLAB with the following code:

```
% Assume y[n] is of length N (i.e.,  $n = 0, 1, \dots, N$ )
```

```
k=0:N-1;  
stem(k,y,'filled')  
axis([-1 N -ymin ymax])
```

You can adjust ymin and ymax to get the y-axis show properly.