EE322 Fall 08 Homework Problem Set 10 (PS10)—Solutions

Note how I used the 'linewidth' option in my *plot* commands to make the plots thicker.

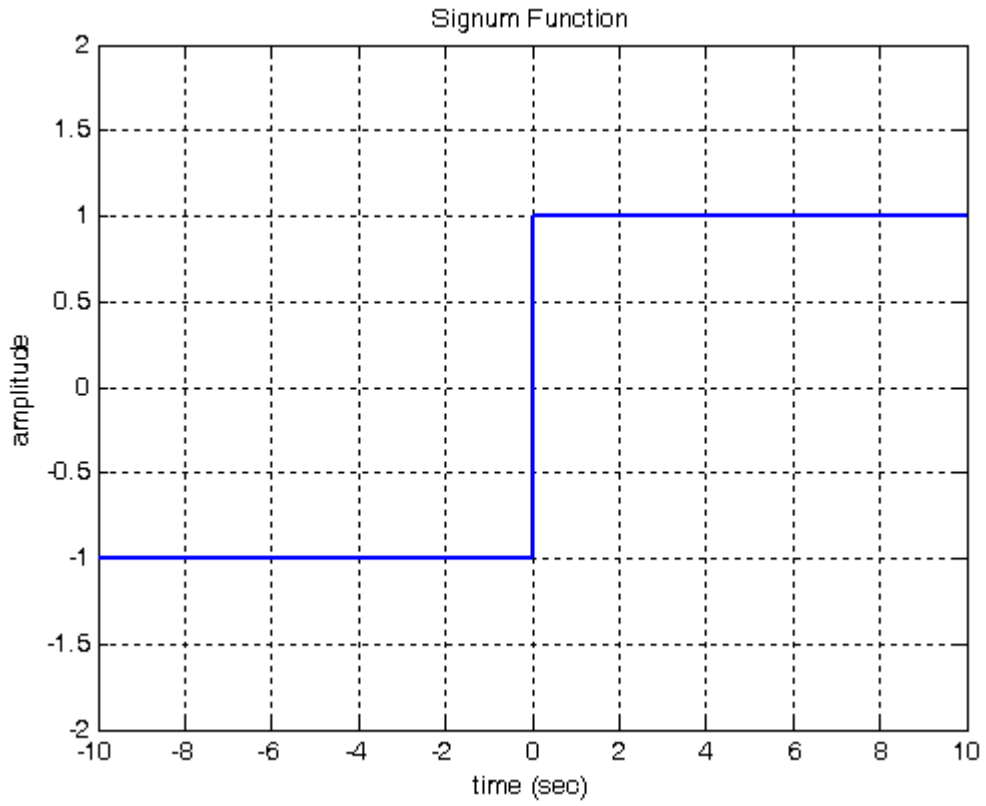
1. Enter your code from p. 33 of text, and download the *sinc322* function from the course website.

2. My sgn function (which uses the unit step function from problem 1):

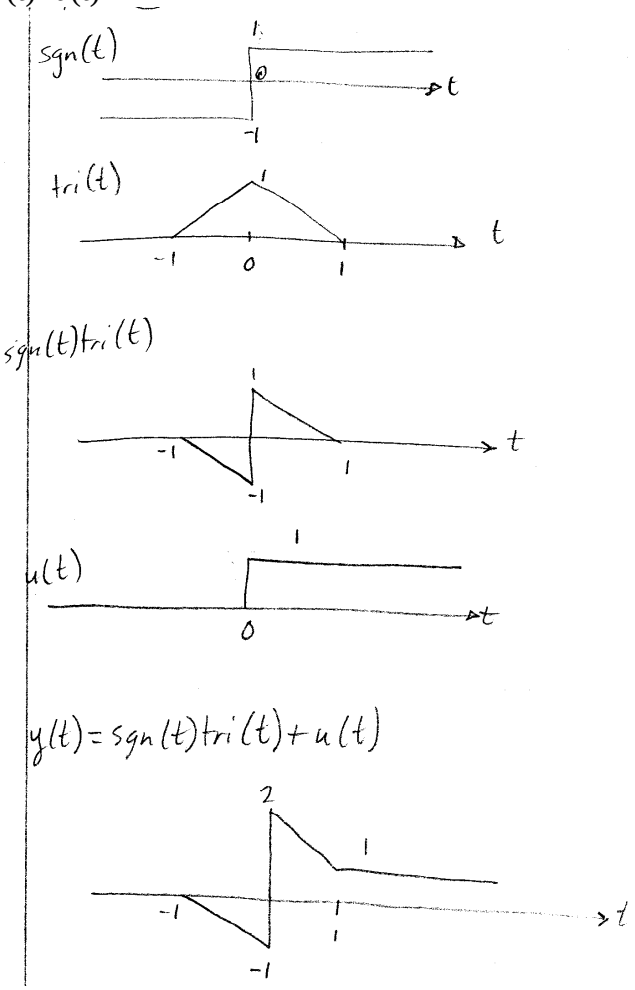
```
function y=sgn(t)
% function y=sgn(t)
%
%   This function implements the signum function. It uses the unit step
%   function to create the signum.
y=2*(u(t)-0.5);
```

To test it, I used the following code. Note that I set the axes values to let the y-axis go from -2 to 2, so that I could see the curve that has a height of 1 for t >= 0, and -1 for t < 0; otherwise it is hard to see the result.

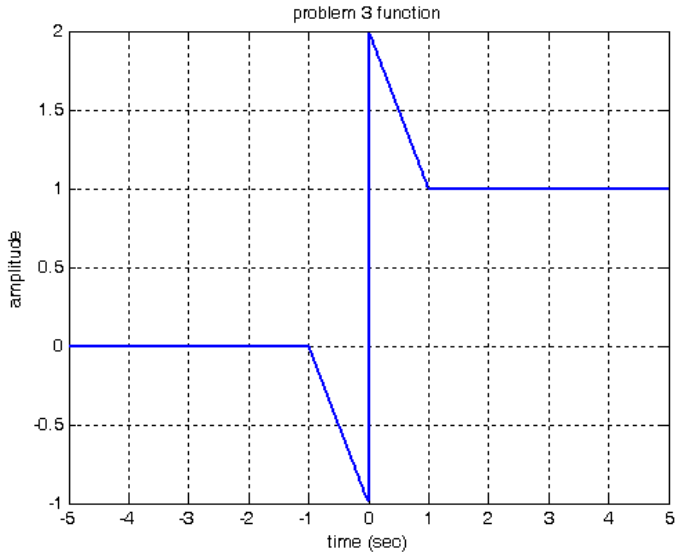
```
t=-10:.01:10;
y=sgn(t);,figure(1),plot(t,y,'linewidth',2),axis([-10 10 -2 2]),grid on
xlabel('time (sec)'),ylabel('amplitude'), title('Signum Function')
```



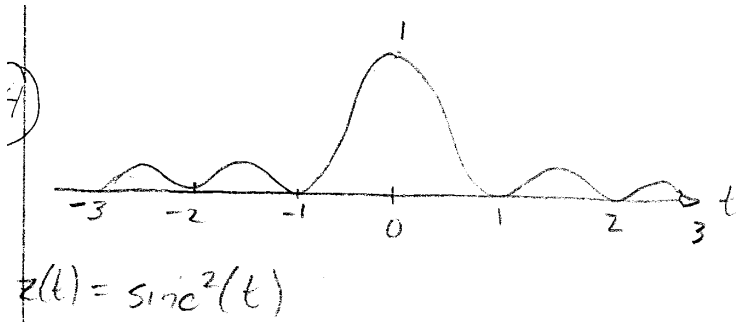
3. y(t)=sgn(t)tri(t)+u(t)




```
% Problem 3:
t=-5:.01:5;
y=sgn(t).*tri(t)+u(t);
plot(t,y,'linewidth',2),grid on, xlabel('time (sec)'),ylabel('amplitude'),
title('problem 3 function')
```



4. $z(t)=\text{sinc}^2(t)$.




```
% Problem 4;
t=-3:.01:3;
z=sinc322(t).^2;
plot(t,z,'linewidth',2),xlabel('time (sec)'),ylabel('amplitude'),
title('problem 4 function'), grid on
```