EGN3204 — Engineering Software Tools
Pensacola (82151) Section, Fall 2014
Problem Set #6 (October 2nd, 2014 Lecture)
(Word, Matlab R2013a)

James Davis

1. The matlab code for problem one is given in Figure 1 and the graph output for problem one is given in Figure 2.

```
%James Davis, EGN3204, Fall 2014
% MATLAB m file for problem 1

%clears all the input
clear all

%setting up variables
t = linspace(0,5*10^-3,2000);

sinusoid = 3*sin(t*500*pi)+2;

pulse_train = 2.5*square(t*400*pi,50)+2.5;

triangle_wave = 3.5*sawtooth(t*800*pi,0.5) - 2.5;

%plotting the variables
figure(1)
plot(t,sinusoid,'k-',t,pulse_train,'r-',t,triangle_wave,'b-',...
    'LineWidth',3);
xlabel ('time (s)');
ylabel ('oscilloscope reading(V)');
title ('Plot by James Davis');
axis ([0 5*10^-3 -8 10]);
set(gca,'XTick',0:5*10^-4:5*10^-3);
set(gca,'YTick',-8:1:10);
grid on;
legend('y_{1} = 3sin(500pi*t)','y_{2} = 2.5square(400pi*t,50)+2.5',...
    'y_{3} = 3.5sawtooth(800pi*t,0.5)-2.5');
```

Figure 1. The matlab code for problem 1.

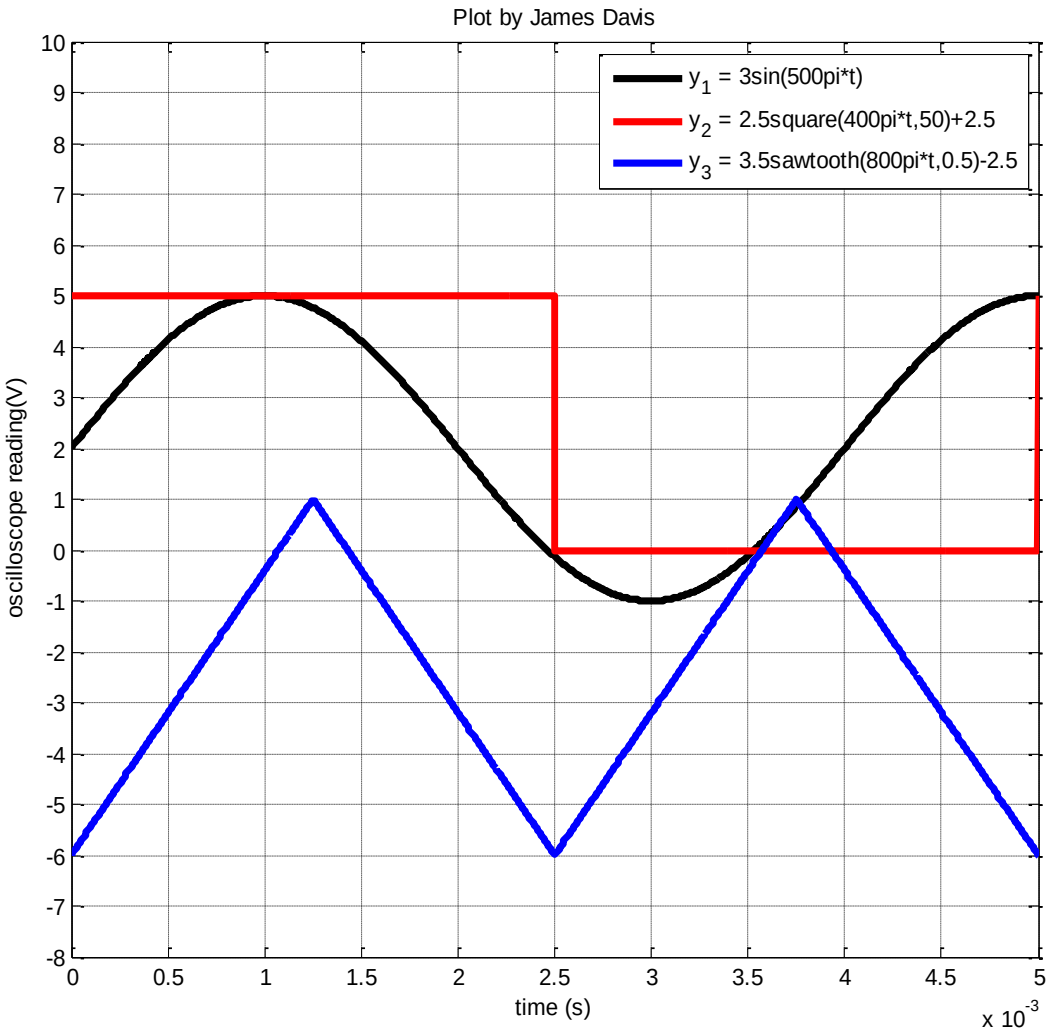

Figure 2. The graph output when the code from Figure 1 is run.

2. The matlab code for problem two is given in Figure 3. The graph output for the matlab code is given in Figures 4 – 10. Figure 4 is the graph for figure(1) and Figure 9 is the graph for figure(6) and the rest follow respectively.

```
%James Davis, EGN3204, Fall 2014
% MATLAB m file for problem 2

clear all

%definig variables
n = 0:1:10;



x1 = (0.75).^n;
x2 = (0.95).^n;
x3 = (1.1).^n;
x4 = (-0.65).^n;
x5 = (-0.9).^n;
x6 = (-1.2).^n;

%figure 1
figure(1)
stem(n,x1);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_1[n] = (0.75)^n');
title('Plot by James Davis');
grid on;

%figure 2
figure(2)
stem(n,x2);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_2[n] = (0.95)^n');
title('Plot by James Davis');
grid on;

%figure 3
figure(3)
stem(n,x3);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_3[n] = (1.1)^n');
title('Plot by James Davis');
```

```
grid on;



%figure 4
figure(4)
stem(n,x4);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_4[n] = (-0.65)^n');
title('Plot by James Davis');
grid on;

%figure 5
figure(5)
stem(n,x5);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_5[n] = (-0.9)^n');
title('Plot by James Davis');
grid on;

%figure 6
figure(6)
stem(n,x6);
xlabel ('n')
set(gca,'XTick',0:1:10);
ylabel ('x_6[n] = (-1.2)^n');
title('Plot by James Davis');
grid on;
```

Figure 3. The matlab code for problem two.

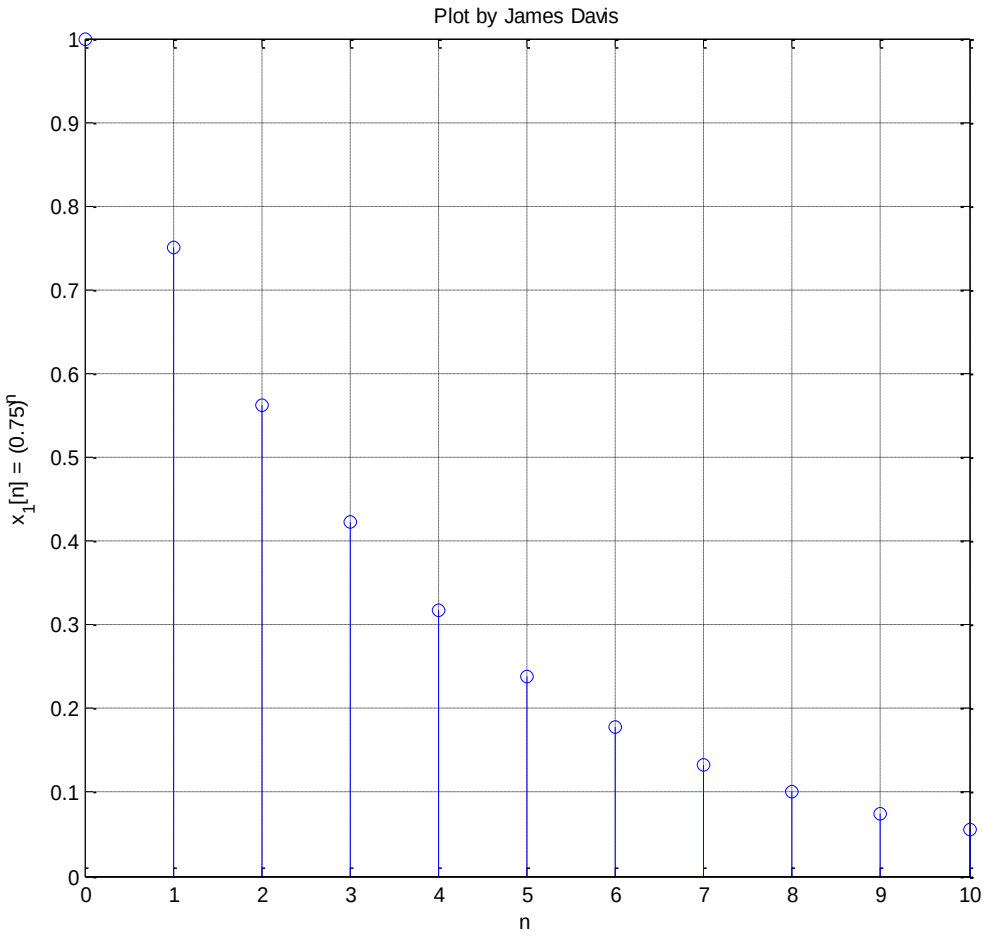

Figure 4. The graph output for figure(1)

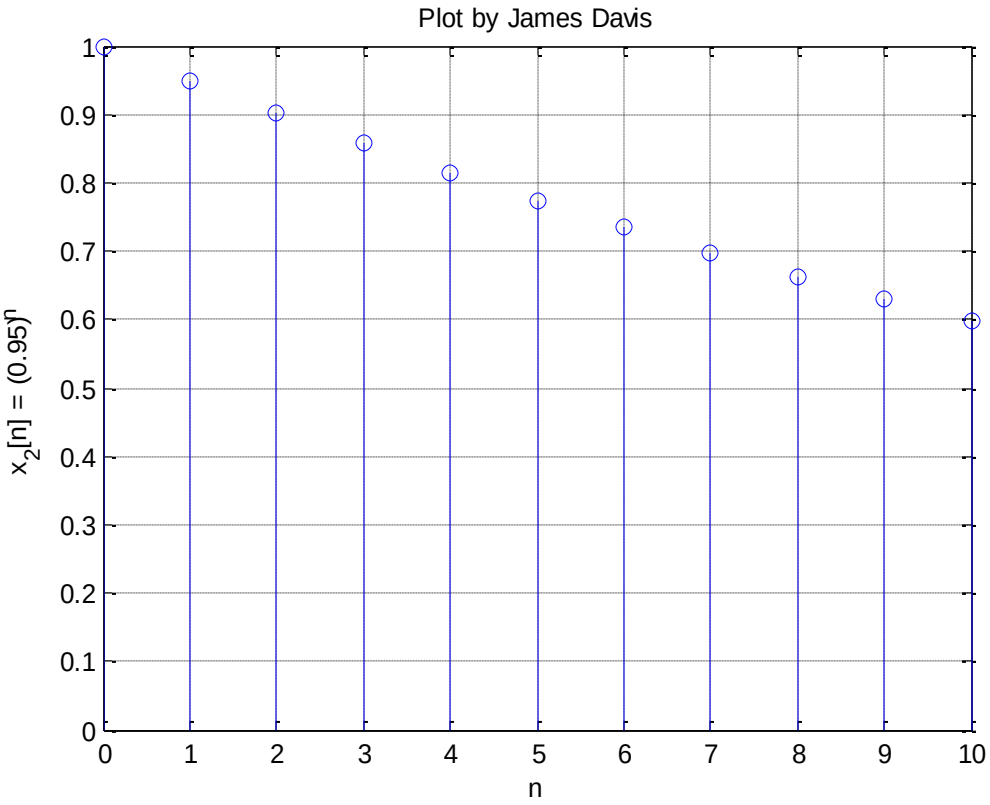

Figure 5. The graph output for figure(2)

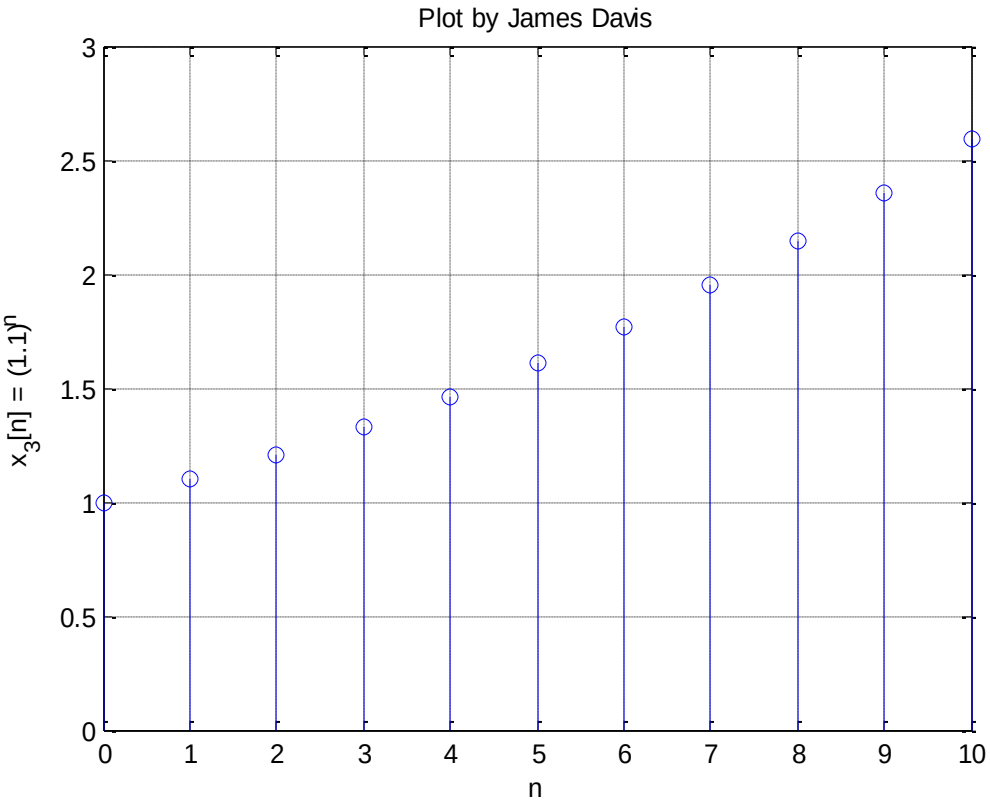

Figure 6. The graph output for figure(3)

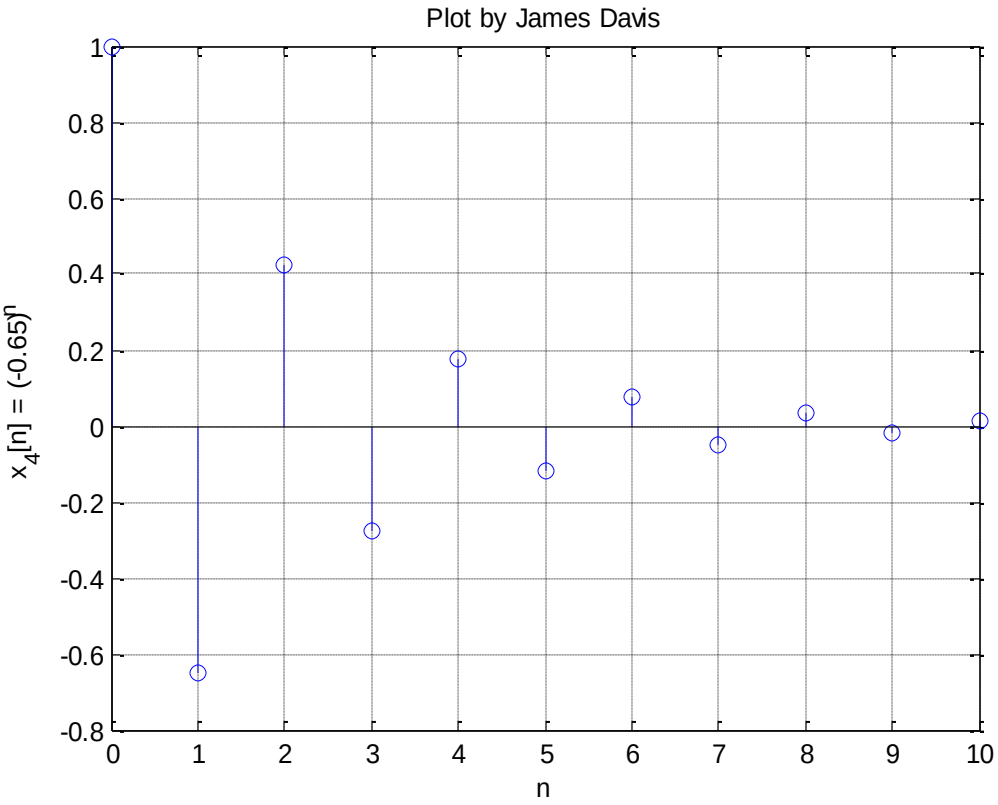

Figure 7. The graph output for figure(4)

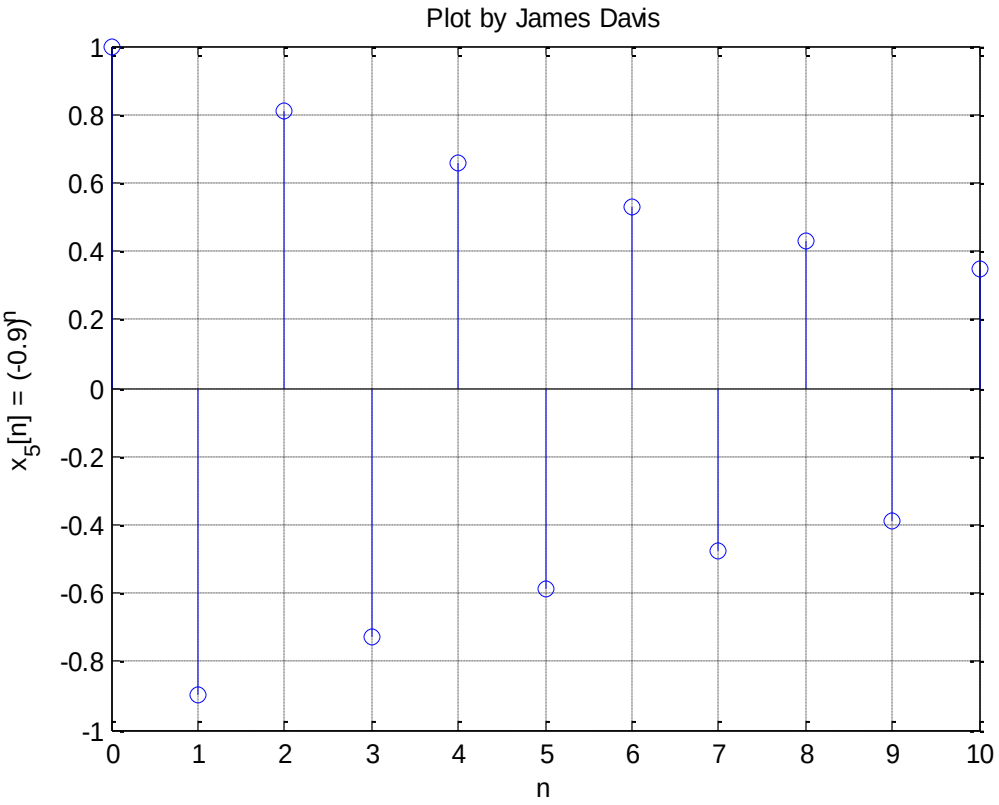

Figure 8. The graph output for figure(5)

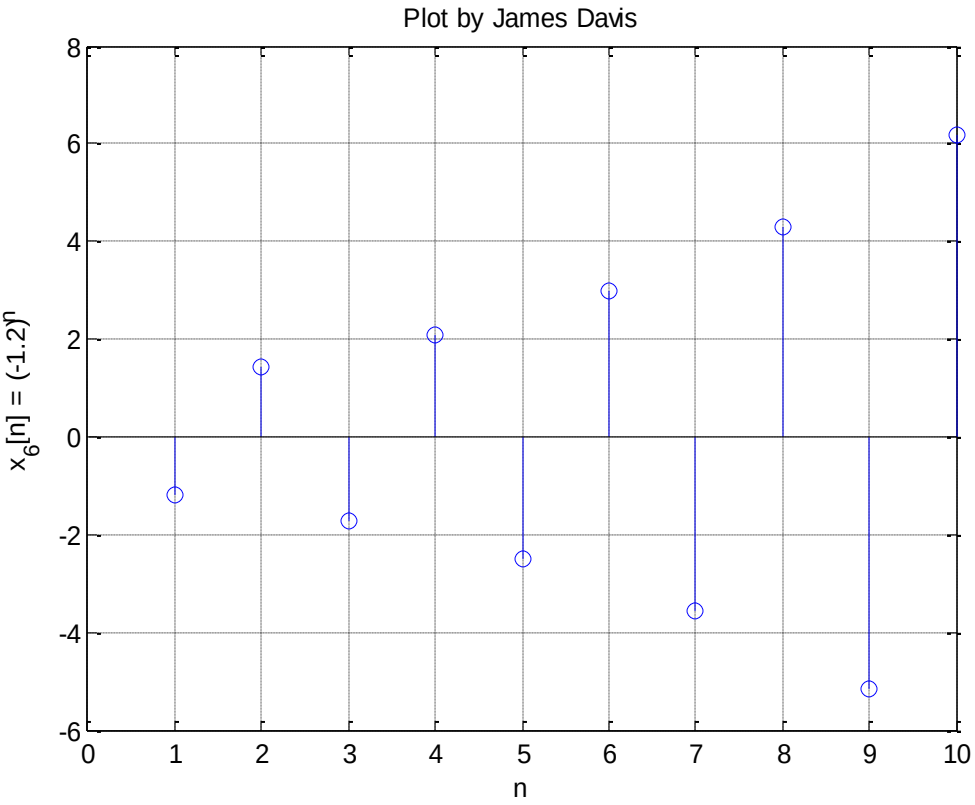

Figure 9. The graph output for figure(6)