

**EGN3204 — Engineering Software Tools**  
**Pensacola (82151) Section, Fall 2014**  
**Problem Set #10 (October 30<sup>th</sup>, 2014 Lecture)**  
**(Word, Matlab R2013a)**

1. The matlab code for problems 1 is given in Figure 1 and the output for problems 1 is given in Figure 2 and 3 respectively.

```
%James Davis, EGN3204, Fall 2014
% MATLAB m file for problem 1, Project 10

clear all;
clc;

load('data/matlab_301014_230pm_ac.mat');
load('data/matlab_301014_230pm_d.mat');
load('data/matlab_301014_230pm_ej.mat');
load('data/matlab_301014_230pm_ko.mat');
load('data/matlab_301014_230pm_ps.mat');
load('data/matlab_301014_230pm_tz.mat');

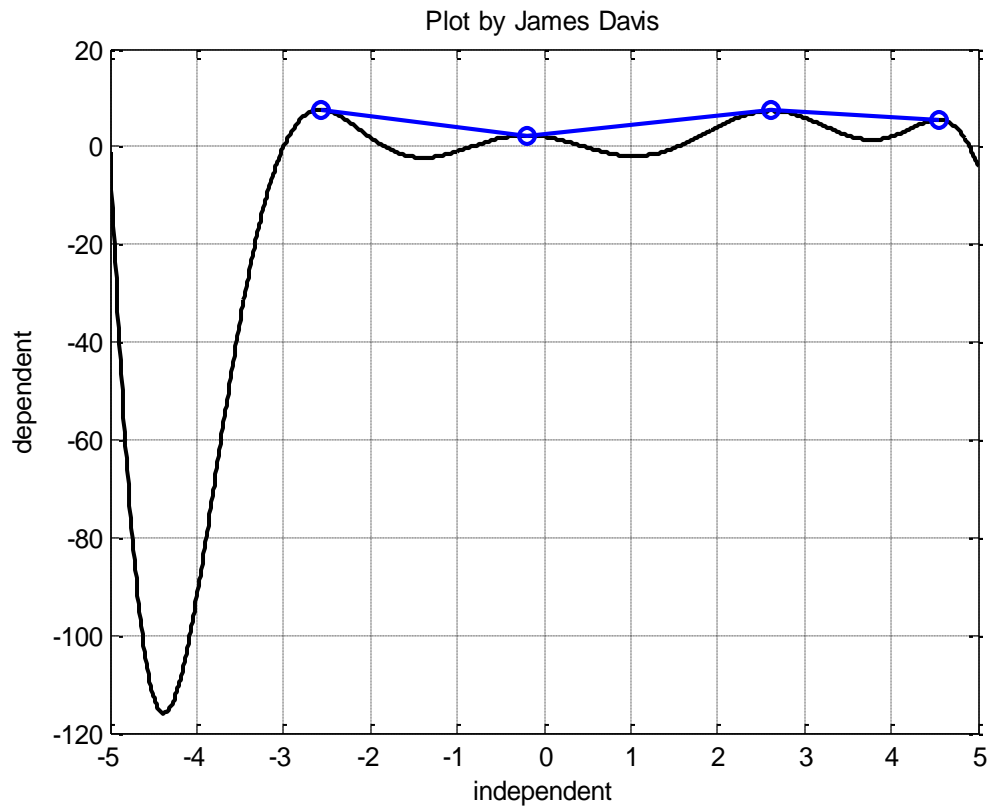
%outputting maxima and locations
[maxima,locations] = findpeaks(dependent);

%plotting the figures
figure (1)
plot(independent,dependent,'k-',independent(locations),maxima,'bo-','LineWidth',2);
title('Plot by James Davis');
xlabel('independent');
ylabel('dependent');
grid on;

%printing data
max_data(1,:) = maxima;
max_data(2,:) = independent(locations);

fprintf('One maxima is %f and its x location is %f\n',max_data);
```

**Figure 1.** The code for problem 1



**Figure 2.** The graph output for problem 1

One maxima is 7.524442 and its x location is -2.570000  
One maxima is 2.335033 and its x location is -0.190000  
One maxima is 7.316681 and its x location is 2.620000  
One maxima is 5.486717 and its x location is 4.550000

**Figure 3.** The matlab output for problem 1

2. The matlab program for problem 2 is given in Figure 4. The output for the given variables is shown in Figure 5.

```
%James Davis, EGN3204, Fall 2014
% MATLAB m file for problem 2, Project 10

clear all;
clc;

monthly = input('Enter monthly electricity usage in kW: ');
days = input('Enter days in billing cycle: ');

if(monthly <= 200)
    charge = monthly * 0.11;
elseif(monthly <= 500)
    charge = (200 * 0.11)+((monthly - 200)*0.17);
else
    charge = ((monthly-500) * 0.29) + 200*0.11 + 300*0.17;
end

charge = charge + (days*0.5);
charge = (charge*0.08) + charge;

fprintf('%dkWh in a %d billing period charges
$%.2f\n',monthly,days,charge);
```

**Figure 4.** The matlab m file for problem 2.

```
i.
Enter monthly electricity usage in kW: 0
Enter days in billing cycle: 33
0kWh in a 33 billing period charges $17.82
ii.
Enter monthly electricity usage in kW: 123
Enter days in billing cycle: 30
123kWh in a 30 billing period charges $30.81
iii.
Enter monthly electricity usage in kW: 333
Enter days in billing cycle: 29
333kWh in a 29 billing period charges $63.84
iv.
Enter monthly electricity usage in kW: 767
Enter days in billing cycle: 32
767kWh in a 32 billing period charges $179.74
```

**Figure 5.** The selected outputs for the program in Figure 4.