

Workshop 3

Afief Halumi
302323001

% Main.m

```
[x,f,xx,ff,y,gramm,c]=afiefpoly(1);  
subplot(2,2,1);  
plot(x,f,'.',xx,ff);  
axis([-1.5,1.5,-1.5,1.5]);
```

```
[x,f,xx,ff,y,gramm,c]=afiefpoly(3);  
subplot(2,2,2);  
plot(x,f,'.',xx,ff);  
axis([-1.5,1.5,-1.5,1.5]);
```

```
[x,f,xx,ff,y,gramm,c]=afiefpoly(5);  
subplot(2,2,3);  
plot(x,f,'.',xx,ff);  
axis([-1.5,1.5,-1.5,1.5]);
```

%printing

```
gramm  
y  
c
```

```
[x,f,xx,ff,y,gramm,c]=afiefpoly(15);  
subplot(2,2,4);  
plot(x,f,'.',xx,ff);  
axis([-1.5,1.5,-1.5,1.5]);  
print -dpng n1.png
```

% afiefpoly.m

```
function [x,f,xx,ff,y,g,c] = afiefpoly(n)

g=zeros(n);
for i=1:n
    for j=1:n
        if round((i+j)/2)==(i+j)/2,
            g(i,j)=2/(i+j-1);
        end
    end
end

y=zeros(n,1);
for i=1:n
    y(i,1)=-(2.*(-1).^i.-2)./(i.^2.+4.*i.+3);
end

cc=(g^(-1))*y;
c=zeros(1,n);
for i=1:n
    c(i)=cc(n-i+1,1);
end

x1=-1:0.1:0;
f1=-x1.+x1.^3;
x2=.1:.1:1;
f2=x2.-x2.^3;
x=[x1,x2];
f=[f1,f2];
xx=-1.5:.05:1.5;
ff=polyval(c,xx);
```

Output

gramm =

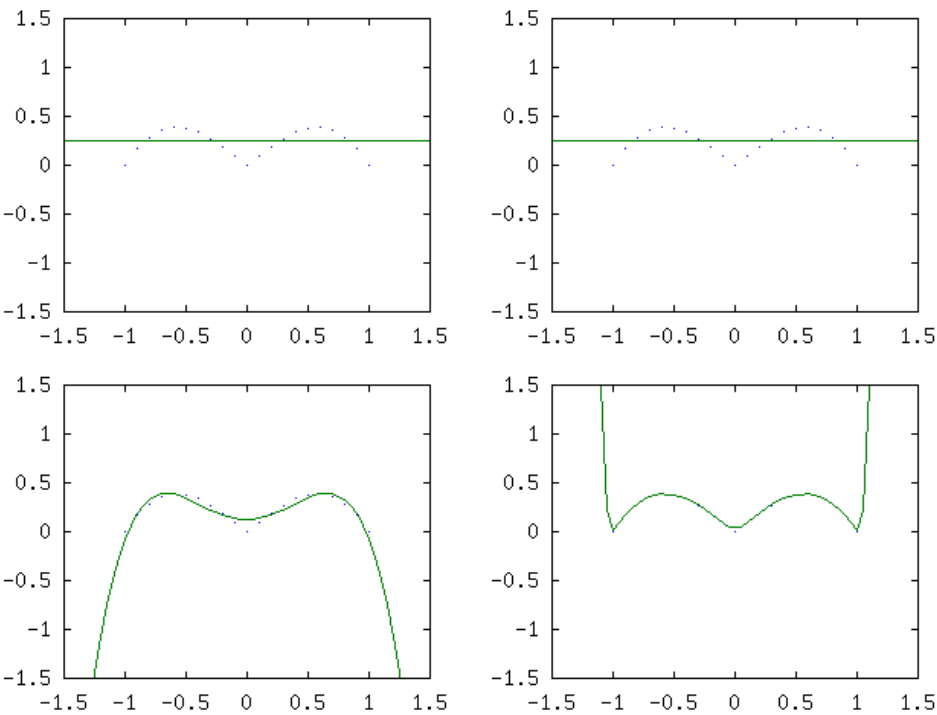
```
2.00000  0.00000  0.66667  0.00000  0.40000
0.00000  0.66667  0.00000  0.40000  0.00000
0.66667  0.00000  0.40000  0.00000  0.28571
0.00000  0.40000  0.00000  0.28571  0.00000
0.40000  0.00000  0.28571  0.00000  0.22222
```

y =

```
0.50000
-0.00000
0.16667
-0.00000
0.08333
```

c =

```
-1.43555  0.00000  1.23047  0.00000  0.12695
```



Notes

These results were obtained by using GNU Octave. Following are the legal notes concerning GNU Octave:

GNU Octave, version 3.0.1

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Octave was configured for "i486-pc-linux-gnu".

Additional information about Octave is available at <http://www.octave.org>.

Please contribute if you find this software useful.

For more information, visit <http://www.octave.org/help-wanted.html>

Report bugs to <bug@octave.org> (but first, please read <http://www.octave.org/bugs.html> to learn how to write a helpful report).

For information about changes from previous versions, type `news'.