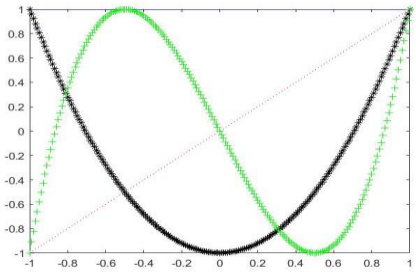
MATLAB-PDE Toolbox

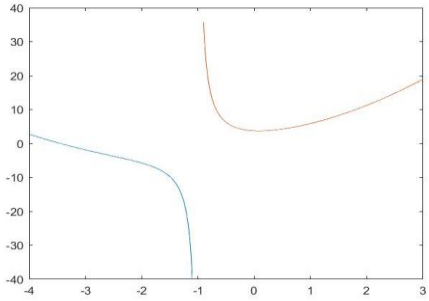
Exercice 1:

```
>> figure
>> t=[-1:0.01:1];
>> y1=cos(0*acos(t));
>> y2=cos(1*acos(t));
>> y3=cos(2*acos(t));
>> y4=cos(3*acos(t));
>> plot(t,y1,'-b',t,y2,t,y3,t,y4)
>> plot(t,y1,'-b',t,y2,':r',t,y3,'*k',t,y4,'+g')
```



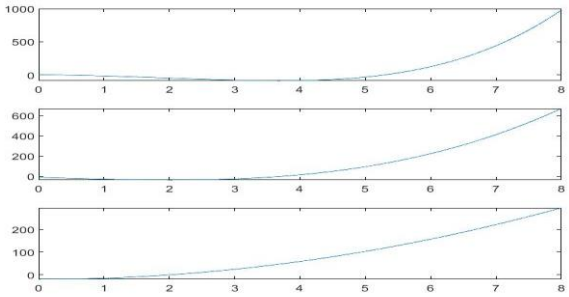
Exercice 2:

```
>> x1=-4:0.01:-1.1;
>> x2=-0.9:0.01:3;
>> y1=x1^2+3.*x1+3./(0.8*(x1+1));
>> y2=x2.^2+3.*x2+3./(0.8*(x2+1));
>> figure
>> plot(x1,y1,x2,y2)
```



Exercice 3:

```
>> p1=[0.41 0 -10 -8.2 4.4]
p2=polyder(p1) ; p3=polyder(p2)
t=0:0.01:8;
x=polyval(p1,t); v=polyval(p2,t);
a=polyval(p3,t);
figure;
subplot(3,1,1)
plot(t,x)
subplot(3,1,2)
plot(t,v)
subplot(3,1,3)
plot(t,a)
```



Exercice 4:

```
>> figure; surf(X,Y,Z)
[X,Y]=meshgrid(-pi:0.1:pi, -pi:0.1:pi);
Z=cos(X.*Y).*cos(sqrt(X.^2+Y.^2));
figure; surf(X,Y,Z)
>> [X1,Y1]=meshgrid(-3:0.1:3, -3:0.1:3);
>> Z1=(1/3)*X1.^2+2*sin(3*Y1);
>> figure; surf(X1,Y1,Z1)
```