Homework 1

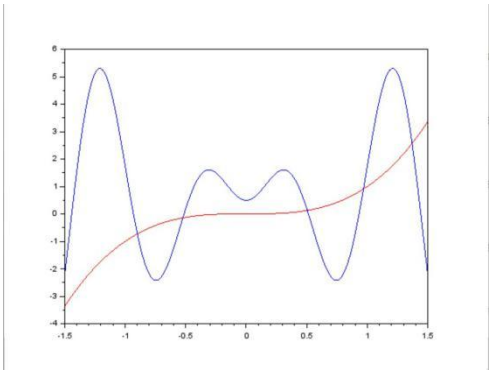
```
x=1
for k=1:1000
    y=exp(2*x)-2.5+1/(12+x)
    dy=2*exp(2*x)-1/(12+x)^2
    x=x-y/dy
End
disp(x,y)
```

X=0.4418065

While Y=-2.35922392733*10^-16 (sufficiently close to 0)

Homework 2

```
x=-1.5:0.0001:1.5
y=(-1)^12.*x.*x.*x
z=4.*x.*sin(0.3*(12+10).*x) +0.5
plot(x,y,'r')
plot(x,z,'b')
```



5 intersection points $\Longrightarrow$ 5 roots

Homework 3

```
clear
Int=integrate('x^2/sqrt(12+sin(x))','x', 0, 1)
printf("%1.12f",Int)
```

Int=0.0936522

（before keeping significant digits 0.093652246363255）

Homework 4

```
clear
h=0.01
xx=0
yy=0
plot(2,2)
for k=1:3000
 dFdx=2*cos(2.*xx+1.5.*yy-2)
 dFdy=1.5*cos(2.*xx+1.5.*yy-2)+yy-2/13
 xx=xx-h*dFdx
 yy=yy-h*dFdy
 plot(xx, yy,'or','LineWidth',1)
end
disp('xx=',xx,'yy=',yy,'k=',k)
```

When k=300, xx=0.1045794 yy=0.1477719,but the adjacent values of xx and yy continue to change significantly.

When k=3000,the xx and yy keep same for at least 10 times of iteration in view of 7 digits. xx=0.0992172 yy=0.1538462

The minimum occurs at x = 0.099217, y = 0.153846,while the minimum value of the function is -1.011834