```
%REGULAR INTERPOLATION
clf
close all
clc
clear
myfun=@(x) (1+25*x.^2).^(-1);
a=-1;
b=1;
nsamples=[4,6,9,11,14,16,19,21,35,55];
frm=ceil(length(nsamples)/2);
choose=input('Equidistant[1] or Tchebyshev[2]: ');
for k=1:length(nsamples)
Np1=nsamples(k);
h=abs(b-a)/(Np1-1);
xlst=linspace(a,b,Np1);
flst=myfun(xlst);

clst=newtonCoeff(xlst,flst);
pxlst=linspace(a,b,1000);
pylst=newtonP(pxlst,xlst,clst);

xTcheb=(1/2)*(a+b)+(1/2)*(b-a)*cos( (2* (0:Np1-1)+1) / (2*Np1) * pi );
fTcheb=myfun(xTcheb);
cTcheb=newtonCoeff(xTcheb,fTcheb);
yTcheb=newtonP(pxlst,xTcheb,cTcheb);

if choose == 2
subplot(2,frm,k)
hold on
scatter(xTcheb,fTcheb,'filled','b')
plot(pxlst,yTcheb,'r')
plot(pxlst,myfun(pxlst),'Black')
ylim([0 1.25])
else
subplot(2,frm,k)
hold on
scatter(xlst,flst,'filled','b')
plot(pxlst,pylst,'r')
plot(pxlst,myfun(pxlst),'Black')
ylim([0 1.25])
end

end

%QUESTION #3
%For the interpolation using equidistant points, it looks like that
%convergence will not occur near and at the endpoints.

%For the interpolation using Tchebyshev points, convergence is much better,
%but I noticed that for more points, there is some disparity at x=-1.
```