**B.1**

a=[0.4/3 0.1/3 0 0 0 0 0 0 0;

0.1/3 0.4/3 0.1/3 0 0 0 0 0 0;

0 0.1/3 0.4/3 0.1/3 0 0 0 0 0;

0 0 0.1/3 0.4/3 0.1/3 0 0 0 0;

0 0 0 0.1/3 0.4/3 0.1/3 0 0 0;

0 0 0 0 0.1/3 0.4/3 0.1/3 0 0;

0 0 0 0 0 0.1/3 0.4/3 0.1/3 0;

0 0 0 0 0 0 0.1/3 0.4/3 0.1/3;

0 0 0 0 0 0 0 0.1/3 0.4/3;]

y=[0.0385 0.0588 0.1 0.2 0.5 1 0.5 0.2 0.1 0.0588 0.0385];

x=[-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1];

b=zeros(9,1);

for i=1:9

b(i)=((y(i+2)-y(i+1))/(x(i+2)-x(i+1))-(y(i+1)-y(i))/(x(i+1)-x(i)));

end

r=pinv(a)\*b

answer:g’’(xi)= [ 0.41374 1.48003 2.48615 18.57539 -46.78769 18.57539 2.48615 1.48003 0.41374] , g’’(x0) = g’’(x10) = 0

**B.2**

>> x=[-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1];

>> y=[0.0385 0.0588 0.1 0.2 0.5 1 0.5 0.2 0.1 0.0588 0.0385];

>> xx=-1:0.01:1;

>> yy=spline(x,y,xx);

>> plot(x,y,"o",xx,yy)

>> print "-S500,400" -dpng output.png

