D.1

```
x=[-1 -0.9511 -0.8090 -0.5878 -0.3090 0 0.3090 0.5878 0.8090 0.9511 1];
y=[0.0385 0.0424 0.0576 0.1038 0.2952 1 0.2952 0.1038 0.0576 0.0424 0.0385];
a=zeros(9,9);
for i=2:8
a(i,i-1)=(x(i+1)-x(i))/6;
a(i,i)=(x(i+2)-x(i))/3;
a(i,i+1)=(x(i+2)-x(i+1))/6;
end
a(1,1)=0.063666667;
a(1,2)= 0.0236833;
a(9,8)=0.023683333;
a(9,9)=0.063667;

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)=
[-0.13415 1.50964 -2.10886 16.64580 -30.46762 16.64580 -2.10886 1.50964 -0.13415] , g’’(x0)=g’’(x10)=0

D.2

```
x=[-1 -0.9511 -0.8090 -0.5878 -0.3090 0 0.3090 0.5878 0.8090 0.9511 1];
y=[0.0385 0.0424 0.0576 0.1038 0.2952 1 0.2952 0.1038 0.0576 0.0424 0.0385];
xx=-1:0.01:1;
yy=spline(x,y,xx);
plot(x,y,”o”,xx,yy)
xlabel(‘x’)
ylabel(‘y’)
print –dpng output.png
```