MA202 ASSIGNMENT 8

NAME:

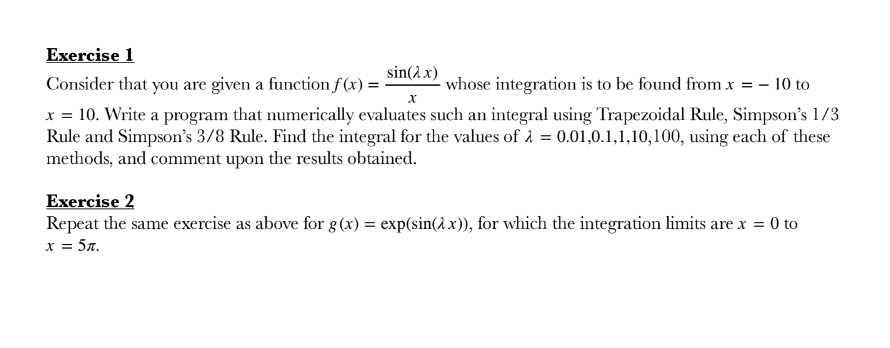
ARCHIT AGRAWAL

ROLL NO. :

202051213

SECTION:

2



**Exercise 1**

***Code***

The values of ain is changed repeatedly.

Lower=-10 ;

upper =10 ;

n= 100;

%Trapezoidal Rule, Simpson’s One third Rule and Simpson’s Three Eighth Rule by multiple application

h = (upper-lower)/n;

xVec = lower :h:upper;

xVec(n+1) = upper +h;

xVec(n+2) = xVec(n+1)+h;

xVec(n+3) = xVec(n+2)+h ;

fVec = myFunInt(xVec);

%applying correction for sinx/x = 1 as x tends to 0

fVec(51) =1;

interval\_trap = zeros(n,1);

interval\_onethird = zeros(n,1);

interval\_threeeigth = zeros(n,1);

for i = 1:n

interval\_trap(i)=(h/2)\*(fVec(i)+fVec(i+1));

interval\_onethird(i)=(h/3)\*(fVec(i)+4\*fVec(i+1)+fVec(i+2));

interval\_threeeigth(i)=(3\*h/8)\*(fVec(i)+3\*fVec(i+1)+3\*fVec(i+2)+fVec(i+3));

end

fprintf(‘The integration is ‘)

I\_trap1 = sum(interval\_trap)

I\_onethird = sum(interval\_onethird)

I\_threeeight = sum(interval\_threeeigth)

function fval = myFunInt(x)

a = [0.01,0.1,1,10,100];

ain= 0.01

%ain= 0.1

%ain= 01

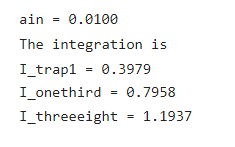
%ain= 10

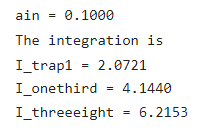
%ain= 100

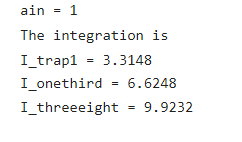
fval = sin(ain\*x)./x;

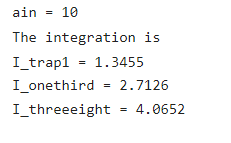
end

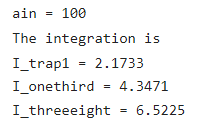
***Output***

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**Exercise 2**

***Code***

The values of ain is changed repeatedly.

lower = 0;

upper =5\*pi;

n= 100;

%Trapezoidal Rule, Simpson's One third Rule and Simpson's Three Eighth Rule by multiple application

h = (upper-lower)/n;

xVec = lower :h:upper;

xVec(n+1) = upper +h;

xVec(n+2) = xVec(n+1)+h;

xVec(n+3) = xVec(n+2)+h;

fVec = myFunInt(xVec);

%applying correction for sinx/x = 1 as x tends to 0

interval\_trap = zeros(n,1);

interval\_onethird = zeros(n,1);

interval\_threeeigth = zeros(n,1);

for i = 1:n

interval\_trap(i)=(h/2)\*(fVec(i)+fVec(i+1));

interval\_onethird(i)=(h/3)\*(fVec(i)+4\*fVec(i+1)+fVec(i+2));

interval\_threeeigth(i)=(3\*h/8)\*(fVec(i)+3\*fVec(i+1)+3\*fVec(i+2)+fVec(i+3));

end

fprintf('The integration is ')

I\_trap1 = sum(interval\_trap)

I\_onethird = sum(interval\_onethird)

I\_threeeight = sum(interval\_threeeigth)

function fval = myFunInt(x)

a = [0.01,0.1,1,10,100];

ain= 0.01

%ain= 0.1

%ain= 01

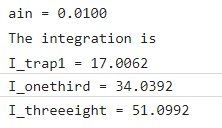
%ain= 10

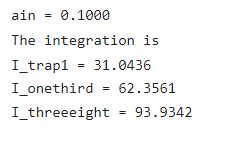
%ain= 100

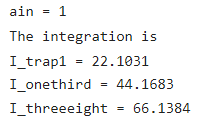
fval = exp(sin(ain\*x));

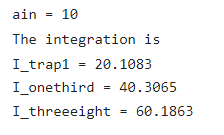
end

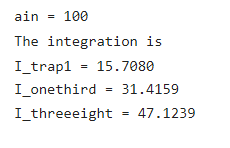
***Output***

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