Write C programs to implement Simpsons method.

Program:

/\* SIMPSONS 1/3rd RULE \*/

#include<math.h>

#include<stdio.h>

main()

{

int i,n;

float sum,s0,s1,s2,h,x0,xn,fn,f0;

clrscr();

printf("enter the values x0,xn,n:");

scanf("%f%f%d",&x0,&xn,&n);

s0=s1=s2=0;

h=(xn-x0)/n;

f0=x0\*x0; fn=xn\*xn;

s0=f0+fn; for(i=1;i<=n-1;i++)

{

x0=x0+h;

f0=x0\*x0;

if(i%2!=0)

s1=s1+f0;

else

s2=s2+f0;

printf("x[%d]=%f\t f[%d]=%f\n",i,x0,i,f0);

}

sum=(h\*(s0+4\*s1+2\*s2))/3;

printf("\tThe intergal value is:%f",sum);

getch();

}

/\* SIMPSONS 3/8th RULE \*/

#include<math.h>

#include<stdio.h>

main()

{

int i,n;

float sum,s0,s1,s2,h,x0,xn,fn,f0;

clrscr();

printf("enter the values x0,xn,n:");

scanf("%f%f%d",&x0,&xn,&n);

s0=s1=s2=0; h=(xn-x0)/n;

f0=x0\*x0;

fn=xn\*xn;

s0=f0+fn;

for(i=1;i<=n-1;i++)

{

x0=x0+h;

f0=x0\*x0;

if(i%3==0)

s1=s1+2\*f0;

else

s2=s2+3\*f0;

printf("x[%d]=%f\t f[%d]=%f\n",i,x0,i,f0);

}

sum=(3\*h\*(s0+s1+s2))/8;

printf("\tThe intergal value is:%f",sum);

getch();

}