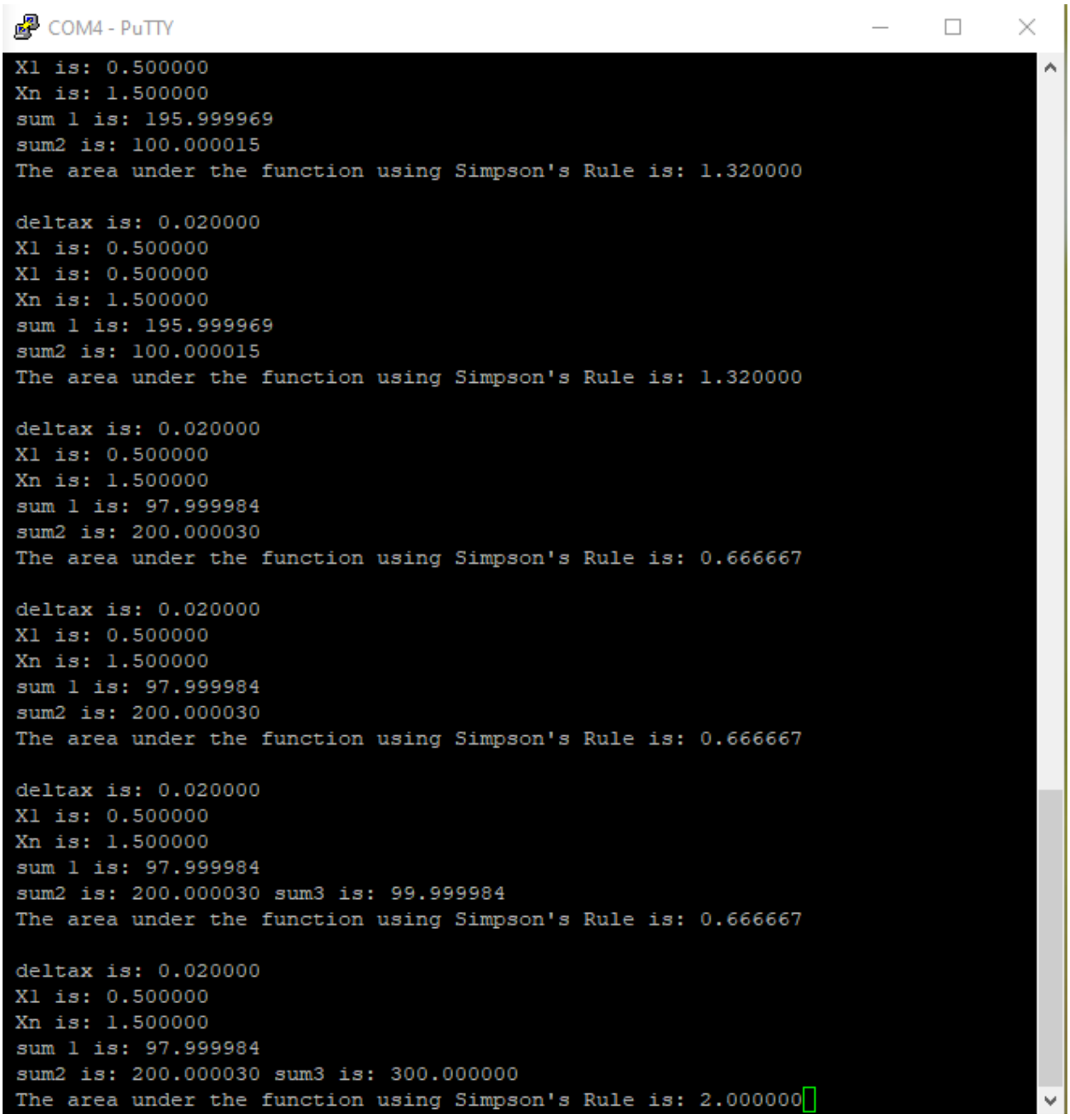
```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <math.h>
#include "mcc_generated_files/mcc.h"
/*
                         Main application
 */
void main()
{
    SYSTEM_Initialize();


     float a=1,b=3; //limits of integration
     int i=0;

     int n=100; //number from Simpson's Rule

     float deltax= (b-a)/n; //delta x for the approximated integral solution

     printf("\n\r\n\r deltax is: %f", deltax);

     float X=0, Xl=0, Xn=0, suml=0, sum2=0; // the Simpson's rule terms up to f of Xn

     for(i=0;i<n+1;i++)
     {
         /*Xl=0.5*i;
         printf(" \n Xl is: %f", Xl);
         */

         if(i==0)
         {
             Xl= 0.5*a;
             printf("\n\r Xl is: %f", Xl);
         }

         else
             {
                     if(i==n)
                     {

                     Xn=0.5*b;
                     printf("\n\r Xn is: %f", Xn);
                     }
                     else
                         {
                             if(i%2 == 0)
                             {
                                 suml +=  2*0.5*(a+(i*(b-a)/n));
                             }
                             else
                             {
                                 sum2 += 4*0.5*(a+(i*(b-a)/n)) ;
                             }

                             //printf("\n sum l is: %f \n sum2 is: %f ", suml, sum2);
                         }
             }
```

```
30
31          if(i==0)
32          {
33              Xl= 0.5*a;
34              printf("\n\r Xl is: %f", Xl);
35          }
36
37          else
38              {
39                          if(i==n)
40                          {
41
42                          Xn=0.5*b;
43                          printf("\n\r Xn is: %f", Xn);
44                          }
45                          else
46                              {
47                                  if(i%2 == 0)
48                                  {
49                                      suml +=  2*0.5*(a+(i*(b-a)/n));
50                                  }
51                                  else
52                                  {
53                                      sum2 += 4*0.5*(a+(i*(b-a)/n)) ;
54                                  }
55
56                                  //printf("\n sum l is: %f \n sum2 is: %f ", suml, sum2);
57                              }
58              }
59
60      }
61
62          printf("\n\r sum l is: %f \n\r sum2 is: %f ", suml, sum2);
63
64      /*for(i=n;i<n+1;i++)
65      {
66          Xn= 0.5*b;
67          printf("\n\r Xn is: %f", Xn);
68      }
69      */
70      float area, sum3;
71
72      sum3= Xl + Xn + suml + sum2;
73
74      area = sum3* deltax/3;
75
76
77      printf("sum3 is: %f",sum3);
78      printf("\n\r The area under the function using Simpson's Rule is: %f",area);
79
80
81      while (1)
82      {
83      }
84
85  }
```


COM4 - PuTTY
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 195.999969
sum2 is: 100.000015
The area under the function using Simpson's Rule is: 1.320000
deltax is: 0.020000
Xl is: 0.500000
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 195.999969
sum2 is: 100.000015
The area under the function using Simpson's Rule is: 1.320000
deltax is: 0.020000
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 97.999984
sum2 is: 200.000030
The area under the function using Simpson's Rule is: 0.666667
deltax is: 0.020000
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 97.999984
sum2 is: 200.000030
The area under the function using Simpson's Rule is: 0.666667
deltax is: 0.020000
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 97.999984
sum2 is: 200.000030 sum3 is: 99.999984
The area under the function using Simpson's Rule is: 0.666667
deltax is: 0.020000
Xl is: 0.500000
Xn is: 1.500000
sum 1 is: 97.999984
sum2 is: 200.000030 sum3 is: 300.000000
The area under the function using Simpson's Rule is: 2.000000