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/*PROGRAM FOR GAUSS SEIDAL ITERATIVE METHOD*/
#Program for Gauss seidel method
#Function Definition
import math
def X1(x2,x3):
 return((20 +3*(x2) - 2*(x3))/8)
def X2(x1,x3):
 return((33 -4*(x1) + (x3))/11)
def X3(x1,x2):
 return((35 - 6*(x1) - 3*(x2))/12)
x1=float(input('Enter the value of x1:'))
x2=float(input('Enter the value of x2:'))
x3=float(input('Enter the value of x3:'))
print('display all values x1, x2, x3 ')
print(' %0.3f'%x1, '%0.3f'%x2, '%0.3f'%x3,);
n=5
for k in range(0,n):
 y1=X1(x2,x3);
 y2=X2(y1,x3);
 y3=X3(y1,y2);
 x1 = y1;
 x2 = y2;
 x3 = y3;
 print(' %0.3f'%x1, '%0.3f'%x2, '%0.3f'%x3,);Result:
Enter the value of x0:0
Enter the value of xn:6
Enter the value of subintervals n:8
step size h= 0.75
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Formula = (h/3)*[(y0+yn)+2*(y2+y4+...) +4*(y1+y3+y5..)]

The result of integration is=1.951

Result:

Enter the value of x1:3

Enter the value of x2:2

Enter the value of x3:1

display all values x1, x2, x3

3.000 2.000 1.000

3.000 2.000 0.917

3.021 1.985 0.910

3.017 1.986 0.912

3.017 1.986 0.912

3.017 1.986 0.912