Comp. Anal. of Phys. Sys.

HW4

1)

Find the root of the equation,

$$2x^2+9x-17=0$$

between x=0 and x=5 using the bisection method. Use epsilon =10^{-6}.

 Write,

- One function to calculate $2x^2+9x-17$. (INPUT: x)

- One function for the bisection method (INPUTS: a,b,epsilon)

- Main program that contains the values a, b, epsilon and uses the bisection method to find the root.

2)

Calculate the following integral using the trapezoid rule by dividing the total interval into 1000 equal subintervals:

$$\int_0^1 \sin(x)\cos(x)$$

Write:

- a function for the integrand (sin(x)cos(x))

- a function for the trapezoid rule (this will call the integrand function)

- a main program that calls the trapezoid function to calculate the integral taking 1000 points between the integral limits. Enter the integral limits in the main program.