Segal’s sine cosine sol

clc;

clear;

clf;

disp("Aryan Rana");

disp("13594 | 23025558006");

disp("B.Sc (H) Electronics");

disp("Comparison of Taylor Series soln. and actual response");

t1=0;

pts=40;

inc=360/pts;

for k1 = 1:pts+1

x(k1)=t1;

a(k1)=0.9\*x(k1);

t1=t1+inc;

taylor\_value(k1)=0;

end

x = (x \* %pi)/180;

a = (a \* %pi)/180;

h = ((x - a) \* %pi)/180;

*// disp("the value of step is " + string(h));*

*// th = linspace(-%pi, %pi, 1000);*

n = input("enter the number of terms of taylor series: ");

Ch = input("enter 1 to choose sine function, 2 to choose cosine function : ");

*// taylor\_value = zeros(th);*

for k1 = 1:pts+1

f = 0;

for i = 0:n

if modulo(i, 2) == 0 then

if Ch==1 then

df = (-1)^(i/2) \* sin(a(k1));

elseif Ch==2 then

df = (-1)^(i/2) \* cos(a(k1));

end

else

if Ch==1 then

df = (-1)^((i-1)/2) \* cos(a(k1));

elseif Ch==2 then

df = (-1)^((i+1)/2) \* sin(a(k1));

end

end

f = f + ((h(k1)^i) \* df)/ factorial(i)

end

taylor\_value(k1) = f;

end

plot(x\*180/%pi,taylor\_value,'d');

if Ch==1 then

plot(x\*180/%pi,sin(x));

elseif Ch==2 then

plot(x\*180/%pi,cos(x));

*//else*

*// plot(x\*180/%pi,tan(x));*

end