멀티미디어수치해석

과제 01

2017113547

이정근

소스코드1 : velocity.m

function v = velocity(m)

v = sqrt(9.81\*m/0.25)\*tanh(sqrt(9.81\*0.25/m)\*4)-36;

end

소스코드2 : msm.m

function [root,rootvec,et0, etvec, eavec]=msm(func,xr,es,pertfrac,maxit)

iter = 0;

et0 = abs((142.7376-xr)/142.7376);

rootvec = zeros(maxit);

etvec = zeros(maxit);

eavec = zeros(maxit);

while(1)

xrold = xr;

xr = xrold - pertfrac\*xrold\*func(xrold)/(func(xrold+pertfrac\*xrold)-func(xrold));

iter = iter+1;

rootvec(iter) = xr;

etvec(iter) = abs((142.7376-xr)/142.7376)\*100;

if xr ~= 0

ea = abs((xr-xrold)/xr)\*100;

eavec(iter) = ea;

end

if ea <= es || iter >= maxit, break, end

end

root = xr;

소스코드3 : main.m

[root, rootvec,et0, etvec, eavec] = msm(@velocity, 50, 0.0001, 0.000001, 10);

fprintf('root = %10.4f\n',root);

fprintf(' i xi |et| |ea|\n');

fprintf('%3d%10.4f %10.12f\n',0,50,et0);

for i=1:6

fprintf('%3d%10.4f %10.12f %10.7f\n',i,rootvec(i),etvec(i),eavec(i));

end

실행결과

