Numerical Method

Bisection Method sudocode

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Assume f(x) is continuous in range [a0, b0], f'(Xn) != 0

initialize a, b

set tol //small value what you choose

set Nmax //we don't want to infinite loop

k = 0 //number of steps.

Repeat until (k<Nmax && Ep > tol)

{

k++;

Xn(k) = (a+b)/2

Ep = fabs(f(Xn));

if ( f(a)\*f(Xn) < 0 )

b = Xn;

else a = Xn;

end

}

Newton-Raphson Method

Assume that f(x) is continuous function.

intialize x0 // try to choose x0 close true value

set tol

set Nmax

k = 0

Repeat until ( k < Nmax && Ep > tol)

{

xk+1 = xk + hk

hk = -f(xk)/f'(xk) -> 도함수는 정의된 함수를 사용하자.

update xk. xk+1 = xk + hk

k++;

}

//cautious : f'(xk) != 0