NEWTON-RAPHSON METHOD

PROGRAM 1

c nr.for

f(x)=x\*x\*x-2\*x-5

f1(x)=3\*x\*x-2

real::x0,x

open(unit=1,file="nr.in")

open(unit=2,file="nr.out")

write(2,\*)"f(x)=x\*x\*x-2\*x-5 "

read(1,\*)n,x0

write(2,\*)"Number of iteration",n

x=x0

write(2,\*)" "

write(2,\*)" x"

do 10 i=1,n

x=x-(f(x)/f1(x))

write(2,\*)x

10 continue

stop

end

INPUT FILE

4

2

OUTPUT FILE

f(x)=x\*x\*x-2\*x-5

Number of iteration 4

x

2.09999990

2.09456801

2.09455156

2.09455156

PROGRAM 2

c nr1.for

f(x)=x\*sin(x)+cos(x)

f1(x)=x\*cos(x)

real::x0,x

open(unit=1,file="nr1.in")

open(unit=2,file="nr1.out")

write(2,\*)"f(x)=xsin(x)+cos(x)"

write(2,\*)" "

read(1,\*)n,x0

write(2,\*)"Number of iteration",n

write(2,\*)" "

x=x0

write(2,\*)" x"

do 10 i=1,n

x=x-(f(x)/f1(x))

write(2,\*)x

10 continue

stop

end

INPUT FILE

4

3.1416

OUTPUT FILE

f(x)=x\*sin(x)+cos(x)

Number of interation 4

x

2.82328343

2.79859996

2.79838610

2.79838610