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module mod_funcion
    public::f,df
contains

function f(x) result(fk)
    real,intent(in)::x!nuestra variable de entrada, Rs
    real::Rv,R12,R34,R21,R43!Estamos escribiendo los 2
!primeros subindices para Rij
    real::Rh,R23,R41,R32,R14
    real::fk,pi
pi=acos(-1.0)
R12=3.91*10**3!Introducimos los valores medidos
R34=3.95*10**3
R21=4.51*10**3
R43=4.6*10**3
R23=3.99*10**3
R41=3.98*10**3
R32=4.13*10**3
R14=4.72*10**3
Rv=(R12+R34+R21+R43)/4.0
Rh=(R23+R41+R32+R14)/4.0
fk=exp(-pi*Rv/x)+exp(-pi*Rh/x)-1!funcion cuya raiz buscamos
end function f

function df(x) result(dfk)
    real,intent(in):: x
    real::dfk,pi
    real::Rv,R12,R34,R21,R43!Estamos escribiendo los 2
!primeros subindices para Rij
    real::Rh,R23,R41,R32,R14

pi=acos(-1.0)
R12=3.91*10**3!Introducimos los valores medidos
R34=3.95*10**3
R21=4.51*10**3
R43=4.6*10**3
R23=3.99*10**3
R41=3.98*10**3
R32=4.13*10**3
R14=4.72*10**3

Rv=(R12+R34+R21+R43)/4.0
Rh=(R23+R41+R32+R14)/4.0
dfk=pi*(exp(-pi*Rv/x)*Rv+exp(-pi*Rh/x)*Rh)/(x**2.0)!derivada
!f
end function df

end module mod_funcion

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