```
!Project 1

PROGRAM goldenmean

!declarations


    IMPLICIT NONE
    Integer :: m,n
    Real :: sqrt5, g, phi0, phi1, phi, phina, phinb,phinc


! define some numbers

    sqrt5=SQRT(5.0)
    g=(sqrt5-1.0)/2.0

!initialize iteration, n=1

phi0=1.0
phi1=g
phinc=g

!iteration

    m=100
    do n=2, m

!recursion step

    phi=phi0-phi1

!compare to

    phina=g**n
    phinb=g**real(n)
    phinc=g*phinc

!monitor iteration

    write (*,'(I4,E15.7,2X,3E15.7)') n,phi, phina, phinb, phinc

!prepare next step

    phi0=phi1
    phi1=phi


end do

END PROGRAM
```