```
program voldim

implicit none
INTEGER, PARAMETER :: m=4
INTEGER, DIMENSION(m) :: seed
real:: Xi,j,r2,V,sum1,sum2,sigma
integer:: i,nh,D,nt,yi
nt=20000
!print *, 'nt='
!read *, nt
print *, 'D='
read *, D
do i=1,m
j=17
seed(i)=j+37*(i-1)
call random_seed(put=seed)

end do
nh=0
sum2=0
sum1=0
do i=1,nt
        r2=0

        do yi=1,D
        call random_number(Xi)
        r2=r2+(2*Xi-1)**2
        end do

   if(r2.le.1)then
   nh=nh+1
   end if

sum2=sum2+(2**D*real(nh)/real(i))**2
sum1=sum1+2**D*real(nh)/real(i)

end do

sigma=sum2/nt-(sum1/nt)**2

V=(2**D)*real(nh)/real(nt)
print(*,*) r2,nh,V,sqrt(sigma)


end program

!print(*,*) xi

!call random_seed(get=seed)
!print(*,*) seed

```