

```

1  program fgamma
2
3  ! Projeto 1 - Introdução à Programação
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6
7  implicit none
8
9  real*8 i,n,gamma,c0,c1,c2,c3,c4,c5,c6,funcaogamma,pi,somacoeffic,fat,razao
10
11  c0 = 1.000000000190015d0
12  c1 = 76.18009172947146d0
13  c2 = -86.50532032941677d0
14  c3 = 24.01409824083091d0
15  c4 = -1.231739572450155d0
16  c5 = 0.1208650973866179/100d0
17  c6 = -0.5395239384953/100000d0
18  gamma = 5
19  pi = 4*ATAN(1.d0)
20  i = 1
21  n = 50
22  fat = 1
23
24  write(15,*)"i      ","gamma      ","fatorial "," razao      "," módulo do log      "
25
26  do while(i.LE.n)
27      somacoeffic = (c0 + (c1/(i+1d0)) + (c2/(i+2d0)) + (c3/(i+3d0)) + (c4/(i+4d0)) +
28      (c5/(i+5d0)) + (c6/(i+6d0)) )
29      funcaogamma = (i+gamma+0.5d0)**(i+0.5d0) * EXP(-(i+gamma+0.5d0)) *
30      SQRT(2.d0*pi) * somacoeffic
31      fat = fat*i
32      razao = abs(((fat - funcaogamma) / fat))
33      write(15,*)i,funcaogamma,fat,razao, abs(dlog(razao))
34      i = i+1
35
36  enddo
37
38  i = 0.5d0
39  n = 5
40
41  write(16,*)"i      ","gamma      "
42  do while(i.LE.n)
43      somacoeffic = (c0 + (c1/(i+1d0)) + (c2/(i+2d0)) + (c3/(i+3d0)) + (c4/(i+4d0)) +
44      (c5/(i+5d0)) + (c6/(i+6d0)) )
45      funcaogamma = (i+gamma+0.5d0)**(i+0.5d0) * EXP(-(i+gamma+0.5d0)) * SQRT(2d0*pi)
46      * somacoeffic
47      write(16,*)i,funcaogamma
48      i = i+1.d0
49
50  enddo
51
52 end program fgamma

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