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 1: program aula06do03exer01
 2: PARAMETER (NNN = 100000)
 3: implicit real*8 (a-h,o-z)
 4: real*8 K0,K1,K2,K3,K4,K5,DIFF,EXATA,X
 5: Dimension Y(0:NNN)
 6: open(14,file="valor-result_KUTTA-06do03.txt")
 7: open(15,file="erro06do03.txt")
 8: H = 0.001d0
 9: NSTEP = 4.d0/H
10: y(0) = 10.d0
11: DO 10 IX = 0, NSTEP-1
12:    X = 1 + IX*H
13:    K0 = FUNC(X,Y(IX))
14:    K1 = FUNC((X + H/4.d0),(Y(IX) + H*K0/4.d0))
15:    K2 = FUNC((X + 3.d0*H/8.d0),(Y(IX) + 3.d0*H*K0/32.d0 + 9.d0*H*K1/32.d0))
16:    K3 = FUNC((X + 12.d0*H/13.d0),(Y(IX) + 1932.d0*H*K0/2197.d0 -
    7200.d0*H*K1/2197.d0 + 7296.d0*H*K2/2197.d0))
17:    K4 = FUNC((X + H),(Y(IX) + 439.d0*H*K0/216.d0 - 8.d0*H*K1 + 3680.d0*H*K2/513.d0 -
    845.d0*H*K3/4104.d0))
18:    K5 = FUNC((X + H/2.d0),(Y(IX) - 8.d0*H*K0/27.d0 + 2.d0*H*K1 -
    3544.d0*H*K2/2565.d0 + 1859.d0*H*K3/4104.d0 - 11.d0*H*K4/40.d0))
19:    Y(IX+1) = Y(IX) + H*(16.d0*K0/135.d0 + 6656.d0*K2/12825.d0 + 28561.d0*K3/56430.d0
    - 9.d0*K4/50.d0 + 2.d0*k5/55.d0)
20:    DIFF = EXATA(X+H)-Y(IX+1)
21:    erro = dabs(DIFF/EXATA(X+H))
22:    write(14,*)X+H,Y(IX+1),EXATA(X+H)
23:    write(15,*)erro
24: 10 CONTINUE
25: end
26:
27: real*8 function FUNC(X,Y)
28: implicit real*8 (a-h,o-z)
29:      FUNC = (LOG(x)-y)/(x+1.d0)
30: end
31:
32: real*8 function exata(x)
33: implicit real*8 (a-h,o-z)
34:      exata = (x*LOG(x)-x+21)/(x+1.d0)
35: end
36:
```