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 1: program aula25do02exer02
 2: PARAMETER (NNN = 100000)
 3: implicit real*8 (a-h,o-z)
 4: real*8 K1,K2,K3,K4,DIFF,EXATA,X
 5: Dimension Y(0:NNN)
 6: open(14,file="valor-result_KUTTA-27do02.txt")
 7: open(15,file="erro27do02.txt")
 8: H = 0.001d0
 9: NSTEP = 3.0d0/H
10: Y(0) = 1.0d0
11: DO IX = 0, NSTEP-1
12:    X = IX*H
13:    K1 = H*FUNC(X, Y(IX))
14:    K2 = H*FUNC((X + H/2.0d0), (Y(IX) + K1/2.0d0))
15:    K3 = H*FUNC((X + H/2.0d0), (Y(IX) + K2/2.0d0))
16:    K4 = H*FUNC((X + H), (Y(IX) + K3))
17:    Y(IX+1) = Y(IX) + (K1 + 2*K2 + 2*K3 + K4)/6.0d0
18:    DIFF = EXATA(X+H)-Y(IX+1)
19:    erro = dabs(DIFF/EXATA(X+H))
20:    write(14,*)X+H,Y(IX+1),EXATA(X+H)
21:    write(15,*)erro
22: enddo
23: end
24:
25: real*8 function FUNC(X,Y)
26: implicit real*8 (a-h,o-z)
27:      FUNC = -x*y
28: end
29:
30: real*8 function exata(x)
31: implicit real*8 (a-h,o-z)
32:      exata = EXP(-0.5d0*(X)**2)
33: end
34:
35:
```