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1 !PROGRAM 9
2 ! Name: Debasis Buxy
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4 !to solve a differential equation numerically using EULER'S METHOD
5 function FUNC(X,Y)
6     implicit none
7     real :: FUNC, Y, X
8     FUNC = Y
9 end function FUNC
10
11 program EULER
12     implicit none
13     real :: FUNC
14     real :: H, X0, Y0, X1, Y1
15     integer :: I, N
16     open(unit=1, file="eulerout.txt")
17     H = 0.1
18     X0 = 0.0
19     Y0 = 1.0
20     N = 40
21     write(1,*) X0, Y0
22     do I = 1, N
23         Y1 = Y0 + H*FUNC(X0,Y0)
24         X1 = X0 + H
25         write(1,*) X1, Y1
26         Y0 = Y1
27         X0 = X1
28     end do
29 end program EULER

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