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1 // Solving a ODE by using Euler's Method
2 // Given function f'(x) = 3x^2 +1
3
4 #include<stdio.h>
5 #include<conio.h>
6
7 float euler_int_soln(float xi, float yi, float xf, float h);
8
9 float dYdX (float x)
10 {
11     float dYdX = 3*x*x +1;
12     return dYdX;
13 }
14
15 void main()
16 {
17     printf("## Solving first ordinary differential equation by using Euler's Method\n\n");
18
19     float xi, yi, xf, h;
20
21     printf("Please Enter the ititial value conditions\n");
22     printf("Initial valu of x >>");
23     scanf("%f",&xi);
24     printf("Initial value of y at x=%f >>",xi);
25     scanf("%f",&yi);
26     printf("\nPlease Enter the Final value of x\n>>");
27     scanf("%f",&xf);
28     printf("Please Enter the step size >>");
29     scanf("%f",&h);
30
31     euler_int_soln(xi,yi,xf,h);
32
33     getch();
34 }
35
36 //Defining Euler's Method of solution
37 float euler_int_soln(float xi, float yi, float xf, float h)
38 {
39     float x, y;
40
41     x=xi;
42     y=yi;
43
44     for(x; x<=xf; x=x+h)
45     {
46         y = y + h*dYdX(x);
47     }
48
49     printf("\nSolution for y at x=%f is :: %f",x,y);
50
51     return 0;
52 }

```