AI

19KU1A0538

Assignment - 2

Find the global min Point & Value for the function $f(x) = x^4 + 3x^2 + 10$

A:- step 1:- initialization

$x = 1$, epoch = 2, $\eta = 0.1$

iteration 1:-

$$\frac{\partial f}{\partial x} = 4x^3 + 6x = 10$$

$$\Delta x = -\eta \frac{\partial f}{\partial x} = -(0.1)(10) = -1$$

$$x = x + \Delta x = 1 - 1 = 0$$

iteration 2:

$$\frac{\partial f}{\partial x} = 4x^3 + 6x = 0$$

$$\Delta x = -\eta \frac{\partial f}{\partial x} = -(0.1)(0) = 0$$

$$x = x + \Delta x = 0 + 0 = 0$$

Now, the global min point is $x = 0$

min value of the function is $f(0) = 0 + 0 + 10$

$= 10$