

AI Assignment-2

19K41A0539

Find the global min. point & value for the function
 $f(x) = x^4 + 3x^2 + 10$.

Ans:- step 1:- initialization

$$x=1, \text{epoch}=2, \eta=0.1$$

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 $f(0) = 0 + 0 + 10$
 $= 10$