

$$x^4 + 3x^2 + 10$$

Iteration 1

let $x=2$ & $\eta=0.01$

$$4x^3 + 6x = 4(2)^3 + 6(2)$$

$$= 32 + 12$$

$$= 44$$

As gradient is not near to zero, calculating step length

$$\Delta x = -0.01 * 44$$

$$= -0.44$$

$$\text{Update } x = 2 - 0.44 = 1.56$$

Iteration 2

$$= 4(1.5)^3 + 6(1.5)$$

$$= 13.5 + 9 = 22.5$$

$$\Delta x = -0.01 * 22.5 = -0.225$$

$$\text{Update } x = 1.5 - 0.225 = 1.275$$