Qa)

$$f(x) = x^4 + 3x^2 + 10.$$

it-1

Let $x=1$ $n=0.01$

$$\frac{df(x)}{d(x)}\bigg|_{(x=1)} = 4(1)^3 + 6(1) = 10$$

$$\Delta x = -(0.01) * 10 = -0.1$$

it-2.

$$x = 0.9 \qquad n = 0.01$$

$$\frac{df(x)}{d(x)}\bigg|_{x=0.9} = 4(0.9)^3 + 6(0.9)$$

$$= 8.316$$

$$\Delta x = -(0.01) * 8.316$$

$$= -0.08316$$

then

$$x = 0.9 - 0.08316$$

$$= 0.816$$