[20] If the cost function for a commodity is:-

$$C(x) = \frac{1}{90}x^3 + 4x^2 + 4x + 10 \text{ dollars.}$$

find the marginal cost at $x=3$ and tell what this predicts about the cost of producing 1 additional unit and 2 additional unit.

$$\overline{MC} = C'(x) = \frac{1}{90}(3)x^2 + 4(2)x + 4$$

$$= \frac{1}{30}x^2 + 8x + 4$$

at $x=3$:-

$$\overline{MC} = \frac{1}{30}(3)^2 + 8(3) + 4$$

$$= 0.3 + 24 + 4 = 28.3$$

the cost will increase by about $28.3.

For 2 additional unit the cost will increase by $28.3(2) = 56.6$ \$.