

~~10.12~~

- Sec 10.3 :-

[3] $f(x) = x^3 + x^2 - x + 1; [-2, 0]$.

Find the absolute maxima and minima for $f(x)$ on the interval $[a, b]$:-

~~3~~ $f'(x) = 0$

$$3x^2 + 2x - 1 = 0$$

$$\rightarrow a = 3, b = 2, c = -1$$

$$x = \frac{-2 \pm \sqrt{2^2 - 4(3)(-1)}}{2(3)} = \frac{-2 \pm 4}{6} \left\{ \begin{array}{l} \rightarrow \frac{2}{6} = \frac{1}{3} \notin [-2, 0] \\ \rightarrow -1 \in [-2, 0] \end{array} \right.$$

$$-1 \rightarrow f(-1) = 2 \quad \text{absolute max.}$$

$$-2 \rightarrow f(-2) = -1 \quad \text{absolute min.}$$

$$0 \rightarrow f(0) = 1$$

\rightarrow absolute max. $\circledast (-1, 2)$
" min $\circledast (-2, -1)$

[7] If the total revenue function for a computer is $R(x) = 2000x - 20x^2 - x^3$, find the level of sales that maximizes revenue and find the max. revenue

$$R'(x) = 2000 - 40x - 3x^2 = 0$$

$$\circledast a = -3, b = -40, c = 2000$$