

Question #4

$$\text{Given } y = f(x) = \begin{cases} x+4, & -6 \leq x < -2 \\ -x, & -2 \leq x < 0 \\ x, & 0 \leq x < 2 \\ -x+4, & 2 \leq x \leq 6 \end{cases}$$

$$\text{Now, } F'(x) = \int_0^x f(t) dt = \begin{cases} \frac{x^2}{2} + 4x, & -6 \leq x < -2 \\ -\frac{x^2}{2}, & -2 \leq x < 0 \\ x^2/2, & 0 \leq x < 2 \\ -\frac{x^2}{2} + 4x, & 2 \leq x \leq 6 \end{cases}$$

$$\text{again, } F''(x) = \begin{cases} 1, & -6 \leq x < -2 \\ -1, & -2 \leq x < 0 \\ 1, & 0 \leq x < 2 \\ -1, & 2 \leq x \leq 6 \end{cases}$$

Question # 4

a) Critical value or points of $f(x)$, $x = \underline{\underline{-4, 4}}$

b) inflection points of $f(x)$, $x = \underline{\underline{-2, 0, 2}}$

c) Now, Global minimum $y = -8$ at $x = -4$
Global maximum $y = 8$ at $x = 4$

d)

