

* Ch 10: Applications of derivatives - (Math 235)

- Sec 10.1 :-

- [10] a) find the critical values of the function
b) make a sign diagram and determine the relative maxima and minima.

$$y = 3x^5 - 5x^3 + 3$$

$$\rightarrow y' = 15x^4 - 15x^2$$

$$y' = 0$$

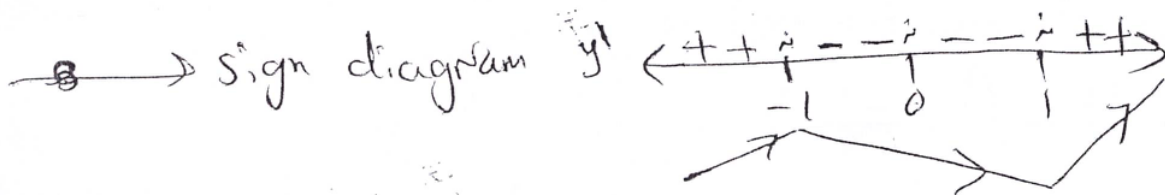
$$15x^4 - 15x^2 = 0 \rightarrow 15x^2(x^2 - 1) = 0$$

$$\sim 15x^2 = 0 \rightarrow x^2 = 0 \rightarrow \boxed{x = 0}$$

$$x^2 - 1 = 0 \rightarrow x^2 = 1 \rightarrow \boxed{x = \pm 1}$$

y' is undefined: No values.

So the critical values: $x = 0, -1, 1$.



relative max. $(-1, f(-1)) = (-1, 5)$

// min $(1, f(1)) = (1, 1)$

horizontal point of inflection = $(0, f(0)) = (0, 3)$.