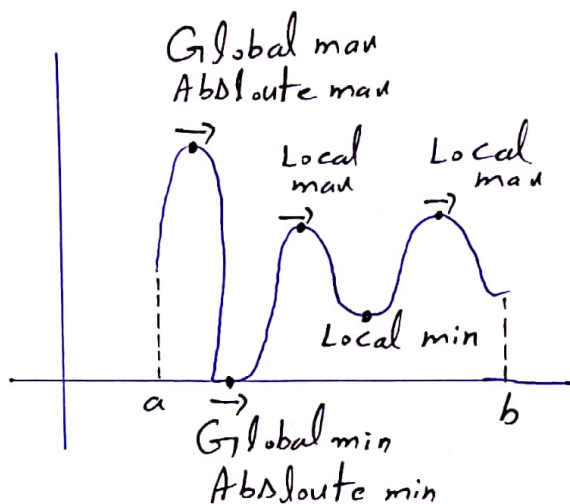


# Applications of Derivative

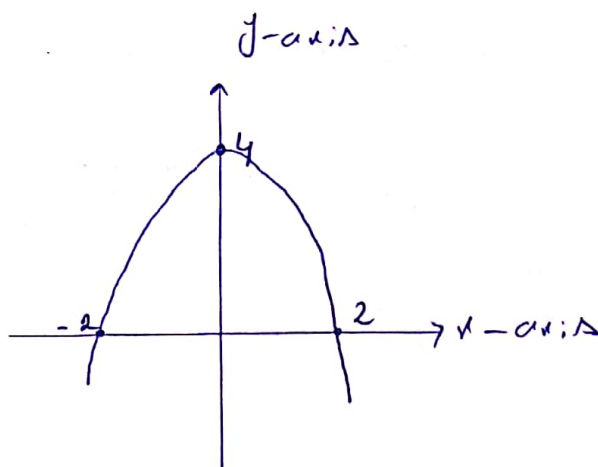
Extrema: Any point at which the value of the function is largest (a maximum) or smallest (a minimum).



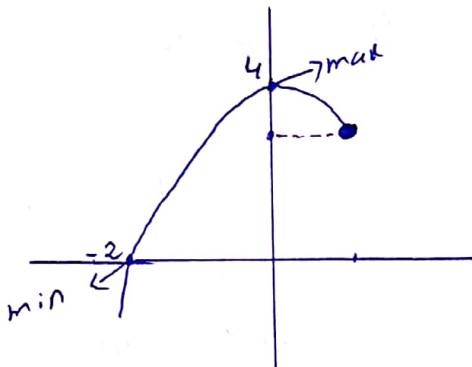
Q#1

Let  $f(x) = 4 - x^2$ , Find the extrema of  $f$  on the following interval.

a)  $[-2, 1]$ , b)  $[-2, +1]$ , c)  $(1, 2]$ , d)  $(1, 2)$



a)  $[-2, 1]$

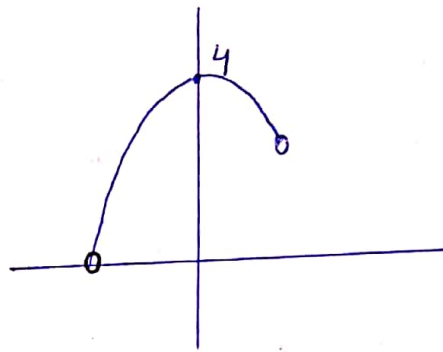


Local max:

$$F(0) = 4$$

$$\text{Local min: } F(-2) = 0$$

b)  $(-2, 1)$

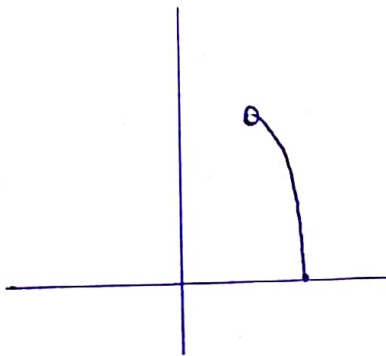


Local max

$$F(0) = 4$$

Local min: None

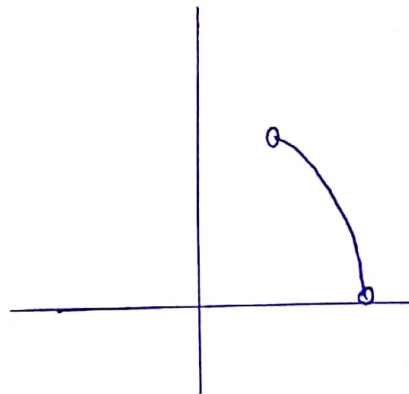
c)  $(1, 2]$



Local Max: None

$$\text{Local min: } F(2) = 0$$

d)  $(1, 2)$



Local max: None

Local min: none