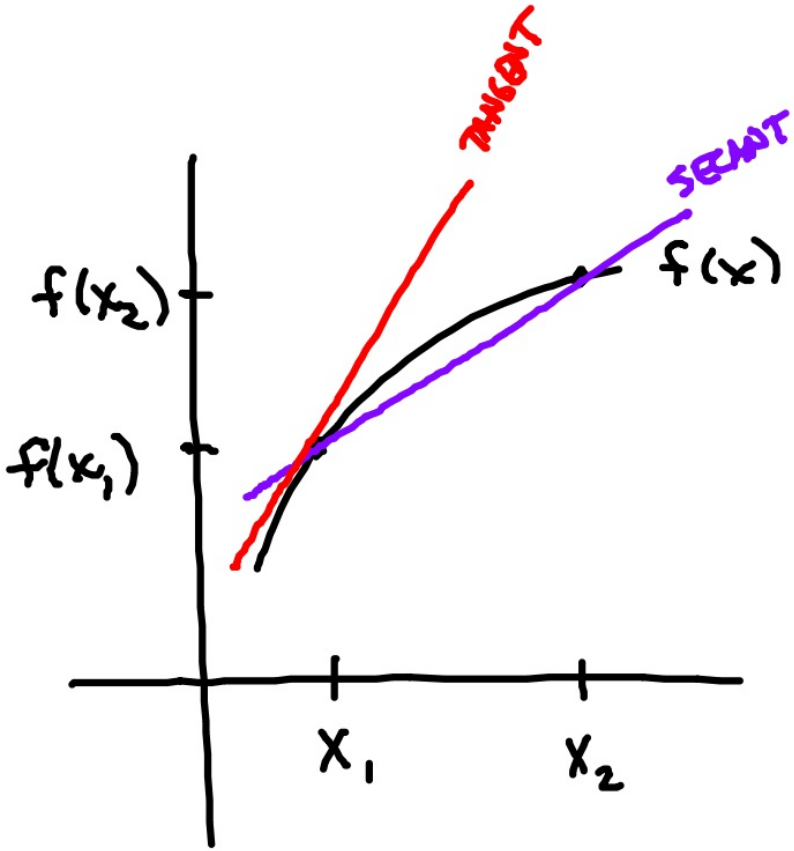

AVERAGE RATE OF CHANGE :

FROM X_1 TO X_2

$$m_{SEC} = \frac{f(x_2) - f(x_1)}{x_2 - x_1}$$

INSTANTANEOUS RATE OF CHANGE @ X_1

$$m_{TAN} = f'(x_1)$$

Ex: $f(x) = x^2$

a) FIND THE AVERAGE RATE OF CHANGE ON $[1, 3]$:

$$\frac{f(1) - f(3)}{1 - 3}$$

$$= \frac{1 - 9}{-2} = \boxed{4}$$

b) FIND THE INSTANTANEOUS RATE OF CHANGE AT $x = 1$:

$$f' = 2x$$

$$f'(1) = \boxed{2}$$