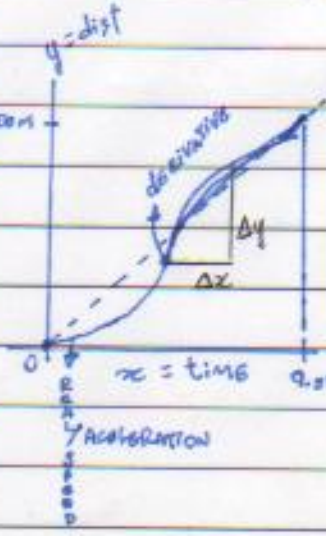
11/08/17

CALCULUS ONE: DIFFERENTIAL CALCULUS → INSTANT!



$\Delta x = 9.58s$

$\Delta y = 100m$

AVG. SPEED = $\frac{\Delta \text{DISTANCE}}{\Delta \text{TIME}} = \frac{\Delta y}{\Delta x}$

$= \frac{100\,m}{9.58s} = 10.4\,m/s = 37.57\,Km/h$ OU $23.48\,mph$

obs.: FOR VELOCITY, THE DIRECTION IS REQUIRED

THE INSTANTANEOUS SLOPE IS THE DERIVATIVE

$\lim_{\Delta x \to 0} \frac{\Delta y}{\Delta x} \rightarrow \left\{ \begin{matrix} [dy] \rightarrow \text{DIFERENTIAL} \\ [dx] \rightarrow \text{DIFERENTIAL} \end{matrix} \right\}$ DERIVATIVE

BY GETTING THE CHANGES IN dy OVER THE CHANGES IN dx IS POSSIBLE TO GET THE INSTANTANEOUS SLOPE/SPEED.