

Notes 3.2 The Derivative Function Vocabulary & Formulas

- $f'(x)$
 - Is read “ f prime of x ”
 - Derivative of f with respect to x
 - Derived from the function $f(x)$ using the limit process, thus its name derivative
 - Can be referred to as the “slope-producing function”
 - If you plug in x_0 , you get $f'(x_0)$. This will result in a number which is the slope of the tangent line AT x_0 .
 - Instantaneous rate of change of y with respect to x at $x = x_0$
 - r_i is instantaneous rate of change of change A.K.A. velocity
- Other notations for $f'(x)$
 - $\lim_{h \rightarrow 0} \frac{f(x+h)-f(x)}{h}$ Formula 3.2.1 in homework
 - m_{tan}
 - $\lim m_{sec}$
 - $\lim_{\Delta x \rightarrow 0} \frac{\Delta y}{\Delta x}$
 - $\lim_{\Delta x \rightarrow 0} \frac{f(x+\Delta x)-f(x)}{\Delta x}$ Formula (12) in homework
 - $r_i = v(t) = \lim_{\Delta t \rightarrow 0} \frac{f(t+\Delta t)-f(t)}{\Delta t}$
 - $\frac{dy}{dx}$
 - $y'(x)$
 - $\frac{d}{dx}[f(x)]$
 - $D_x[f(x)]$
 - $v(t) = f'(t)$
 - $f'(t) = \lim_{h \rightarrow 0} \frac{f(t+h)-f(t)}{h}, h = \Delta t$
 - $\frac{dv}{dr} = \lim_{h \rightarrow 0} \frac{f(r+h)-f(r)}{h}, h = \Delta r$