**Mr. Visca’s: Calculus (Chpt 3.1)**

**Chpt 3 – Day 1 Derivatives of Functions**

3.1 Derivative of a function

Definition:

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Alternative Definition:

*the derivative of the function f at the point x = a, is the limit*

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Notation:

* y’:
* f’(x):
* $\frac{dy}{dx}$
* $\frac{d}{dx}f(x)$

Example: Find the derivative of *f(x)* = *x*3 Example: Differentiate $f\left(x\right)=\sqrt{x}$ at *x* = a.

One Sided Derivatives

$$y=\left\{\begin{array}{c}x^{2} x\leq 0\\2x x>0\end{array}\right.$$

Left hand derivative at x=0

Right hand derivative at x=0

The function \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have a derivative at x=0.

The function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at x=0.

HW: Section 3.1

(1, 2, 5, 8, 10, 12, 13-18, 21, 27, 42)