

ALL THE STUFF I HAVE TO HAVE MEMORIZED FOR CHAPTER TWO
[2009ch2memorize.doc]

The Three Forms of Derivative as Limit:

This one will give us a function, not a numerical value

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} \quad \text{[Remember the song?]}$$

These two will give us a numerical value $c \in \text{Reals}$

$$f'(c) = \lim_{x \rightarrow c} \frac{f(x) - f(c)}{x - c}$$

$$f'(c) = \lim_{h \rightarrow 0} \frac{f(c+h) - f(c)}{h}$$

Rules, rules, rules [All rules are in your textbook or class notes]

Power Rule

Constant Multiple Rule

Sum or Difference Rule

Product Rule

Quotient Rule

Chain Rule

All six trigonometric derivatives

Implicit Differentiation

$$\frac{d}{dx} y = \frac{dy}{dx}$$

$$\frac{d}{dx} y^2 = 2y \frac{dy}{dx} \quad \text{and so on}$$

Related Rates

For related rates you will be taking $\frac{d}{dt}$ of some formula. Remember to list the given quantities and rates, then find a formula that includes everything you have with the quantity or rate that you need.

You should also be able to determine **differentiability** [with limits].

Some of you will need to practice, practice, practice in order to have success in this chapter.