AP Calculus AB

**Chapter 5 Learning Goals**

***Applications of Derivatives***

*Lessons 3-1, 3-2, 5-3:* *Relating the Graphs of* 

* I can graph and analyze from the graph of , graph and analyze from , and graph the derivative of a function given numerically with data.
* I can approximate derivatives graphically.
* I can use the first and second derivative tests to determine local extreme values of a function.
* I can determine the concavity of a function and locate points of inflection by analyzing the second derivative.

*Lesson 3-4: Velocity and Other Rates of Change*

* I can use derivatives to analyze straight line motion and solve other problems involving rates of change.

*Lessons 5-1 & 5-2: Extreme Values & the Mean Value Theorem*

* I can find local or global extreme values of a function.
* I can apply the Mean Value Theorem and find the intervals on which a function is increasing and decreasing.

*Lesson 5-4: Modeling and Optimization*

* I can solve application problems involving optimization.

*Lesson 5-5: Linearization and Differentials*

* I can find the linearization of a function at .
* I can find and evaluate a differential.

*Lesson 5-6: Related Rates*

* I can solve related rate problems.