**Materials**:

 Textbook: Calculus of a Single Variable 9th Edition by Larson, Edwards

 Notes: Notebook or 3 ring binder with loose-leaf paper, handouts,

 Graphing calculator, pencils, highlighters, etc.

**Essential Question:**

How can you relate derivatives with particle motion? How can you use derivatives to optimize a space?

**Rationale**: Students will learn major theorems of Calculus including Extreme Value Theorem, Mean Value Theorem, and Rolle’s Theorem.

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| **Letter Day and Date** | **Section and Objectives** | **Note Pages and Assignment** |
|  | Review relationships between $f, f'$, and $f''$, extending these ideas to understand and apply the Extreme Value Theorem. | Notes pg 1-2Homework packet #1-9 |
|  | Distinguish between the instantaneous rate of change of a function at a point and the average rate of change of a function on an interval, extending these ideas to understand and apply the Mean Value Theorem and Rolle’s Theorem.  | Notes pg 3-5Homework packet #10-21 |
|  | Apply major theorems numerically, graphically, and verbally.  | Notes pg 6-14Homework packet #22-29Study for quiz |
|  | Lap 5 Quiz # 1 |  |
|  | Learn and apply the basic ideas – average velocity, average acceleration, instantaneous acceleration – of motion and how they relate to calculus. Learn and apply the Five Commandments of Particle Motion.1998 AB #32002 AB #32000 AB #22003 AB #2 | Notes pg 15-24Homework packet # 30-38 |
|  | Continue discussing particle motion extending the ideas to finding net and total distance of a moving particle over a given interval. | Notes pg 25-29Homework packet # 39-54 |
|  | Continued discussion of particle motion relating looking specifically at free response questions involving motion. | AP and Free Response Choice Practice. This will be turned in on Lap 5 Quiz #2 Day.  |
|  | Solving optimization, applied maximum and minimum, problems. | Notes pg 30-33Homework packet # 55-61Study for Quiz |
|  | Lap 5 Quiz 2 |  AP Free Response and Multiple Choice Practice is Due – 25 points |
|  | Review for Lap 5 Test | Study for test |
|  | Lap 5 Non Calculator test |  |
|  | Lap 5 Calculator Test | Lap 5 Homework Packet is dues – 50 points |