**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.

|  |  |  |
| --- | --- | --- |
| **Letter Day and Date** | **Section and Objectives** | **Note Pages and Assignment** |
|  | Review relationships between , and , extending these ideas to understand and apply the Extreme Value Theorem. | Notes pg 1-2  Homework 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 3-5  Homework packet #10-21 |
|  | Apply major theorems numerically, graphically, and verbally. | Notes pg 6-14  Homework packet #22-29  Study 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 #3  2002 AB #3  2000 AB #2  2003 AB #2 | Notes pg 15-24  Homework 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 25-29  Homework 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 30-33  Homework packet # 55-61  Study 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 |