



# AP Calculus AB

## 1<sup>st</sup> Grading Period (10 days)

### Power Objectives:

- Produce the derivative of a function by applying the product or quotient rule. (P.O. #6)
- Produce the derivative of a composite function by applying the chain rule. (P.O. #7)
- Solve related rate problems. (P.O. #10)

### Academic Vocabulary:

- tangent line equation
- velocity
- derivative
- average rate of change
- instantaneous rate of change
- acceleration
- differentiable
- implicitly defined function
- explicitly defined function
- implicit differentiation
- related rates

## Derivatives and Rates of Change

### Enduring Understandings:

- The process of differentiation allows us to fully analyze dynamic functions.
- One can analyze changing rates by looking at other rates that are changing within the model.

### Essential Questions:

- What is a geometric understanding of a derivative?
- How does local linearity help us to analyze a function?
- Given a function, can you identify the correct technique needed to find the derivative?