AP Calculus (BC)

Derivatives

The list below contains the *learning targets* for the unit on derivatives. Before the unit test, you should be able to place a check next to each statement as being true.

- ☐ I can describe the concept of a numerical derivative in my own words.
- ☐ I understand and can use a variety of notations for derivatives.
- ☐ I can approximate derivatives numerically and graphically.
- ☐ I can use limits to find derivatives analytically.
- ☐ I can evaluate derivatives using technology.
- ☐ I can find the tangent line to a curve at a specific point.
- ☐ I understand the difference between average and instantaneous rates of change.
- ☐ I can describe the derivative of a function given the graph of that function.
- ☐ I can describe a function given the graph of its derivative.
- ☐ I can define differentiability at a point.
- ☐ I understand the relationship between continuity and differentiability in a function.
- ☐ I can describe common types of non-differentiability in the graph of a function.

Textbook Assignments

The exercises below are from *Calculus: Graphical, Numerical, Algebraic* by Finney, Demana, Waits, and Kennedy. These specific problems are the bare minimum that should be completed after each lesson, but you are encouraged to attempt more if needed.

2.4 Numerical Derivatives **pg 87: 9, 11, 12, 15, 37, 39, 41, 42**
2.4 Rates of Change **pg 87: 8, 23-28, 34**
3.1 Function Derivatives **pg 101: 1-6, 11, 12**
3.1 Graphs of f and f' **pg 101: 7-10, 13, 15, 16, 18, 20, 21**
3.2 Differentiability **pg 111: 3, 7, 9, 11-22, 29**

Assignments are subject to change in class.