

Unit 2 – Differentiation: Study Guide

Unit 1 – Limits: 1-2 through 1-5, and 3-5

2-1

- ☐ I understand the concept of a tangent line, how it relates to slope, and to the definition of a derivative.
- ☐ I know how to find a derivative or a tangent line using the definition of a derivative.
- ☐ I know how to find a derivative or a tangent line using my calculator.
- ☐ I know the different notations that represent a derivative.
- ☐ I understand where a graph is differentiable.
- ☐ I understand that if a function is differentiable at a point, then it is continuous at that point.
- ☐ I understand the graphical connection between a graph and its derivative.

2-2

- ☐ I understand the basic differentiation rules such as: "Constant Rule", "Power Rule", "Constant Multiple Rule", and "Sum/Difference Rules."
- ☐ I know the derivative of $\sin x$ and $\cos x$.
- ☐ I know how to find average velocity.
- ☐ I understand the differentiation connection between position, velocity and acceleration.

2-3

- ☐ I know the derivatives for $\tan x$, $\cot x$, $\sec x$, and $\csc x$.
- ☐ I can apply the "product rule".
- ☐ I can apply the "quotient rule".

2-4

- ☐ I can apply the "chain rule."

2-5

- ☐ I know how to find the first or second derivative of an implicit equation (and find the equation of a tangent line).

2-6

- ☐ I can solve related rates problems.

Unit 2 Homework Assignments

2-1:

- 1-4, 5-37 (odd), 75-87 (odd), 93-96
- [2-1 Derivative Graphing.doc](#)

2-2: 1-23 (odd), 39-67 (odd), 87-92, 93-105 (odd), 111, 115

2-3: 1-17 (odd), 25-51 (odd), 59-75 (odd), 91-97 (odd), 103, 105, 115, 129-131

2-4: 1-33 (odd), 43-63 (odd), 73-79 (odd), 85-89 (odd), 103, 107, 111, 125, 126

2-5: 1-37 (odd), 45-49 (odd)

2-6:

- [2-6 Related Rates Homework Day 1.doc](#)
- [2-6 Related Rates Homework Day 2.doc](#)

Review: 1-81 (odd)