

Unit 3 – Applications of Differentiation: Study Guide

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

Unit 2 – Differentiation: 2-1 through 2-6

3-1

- ☐ I know vocabulary such as: Extrema, absolute max./min., relative max./min.
- ☐ I understand the "Extreme Value Theorem."
- ☐ I know what critical numbers are and how to find them.
- ☐ I know how to find absolute extrema by checking endpoints and critical numbers.

3-2

- ☐ I understand the concept behind Rolle's Theorem and the Mean Value Theorem.
- ☐ I can apply Rolle's Theorem and the Mean Value Theorem to problems.

3-3

- ☐ I know how to use the first derivative to test if a function is increasing or decreasing at a point.
- ☐ I know how to use the first derivative to test if a critical number is a relative max. or min.

3-4

- ☐ I know how to tell when a function is concave up or concave down using derivatives.
- ☐ I know how to use the second derivative test to tell where a function has a relative max. or min.
- ☐ I know how to find points of inflection on a function.

3-6

- ☐ I know how to use *all of my previous knowledge* about functions to make a sketch of a graph without a calculator.

3-7

- ☐ I can solve optimization problems.

Unit 3 Homework Assignments

3-1: 1-43 (odd)

3-2: 1-51 (odd)

3-3: 3-37 (odd), 41-53 (odd), 57-61 (odd), 80

3-4:

- 1-45 (odd), 53, 63
- [3-4 pos-neg, incr-decr.doc](#)

3-6:

- 1-4, 7, 15, 17, 21, 32, 37, 49, 51
- [3-6 Curve Sketching Template.doc](#)

3-7: 9, 15, 19-22, 25, 41

Review: 1-47 (odd), 71, 72, 77, 79