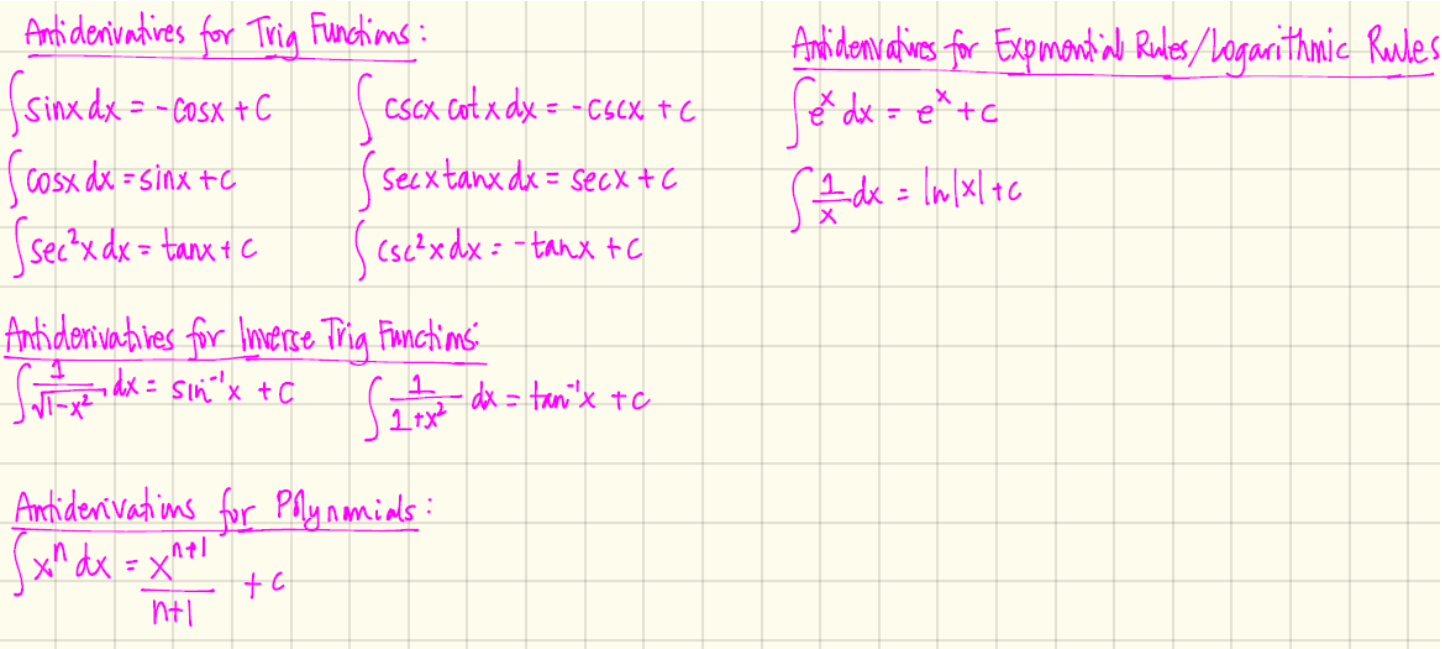
AP Calculus BC Unit 4 Study Guide

1. Know how to compute the antiderivatives of power functions, trig functions, exponential and logarithmic functions.



2. Understand the theory/idea of area under curves. Also be able to approximate area using LRAM, RRAM, MRAM and Trapezoidal Rule.

3. Be able to apply the Fundamental Theorem of Calculus Part 1 and Part 2.

4. Know how to integrate using the substitution rule for compositions of functions.

5. Be able to rewrite trig functions using trig identities in order to integrate (only reciprocal identities).

6. LAST UNIT: Know how to apply the first and second derivatives tests to find local maximum and minimum, intervals of increase and decrease, concavity and point of inflection graphically and algebraically.

7. Know how to write justifications of answers.

8. Know how to integrate different type of functions – sums, products, quotients and compositions of functions by using the appropriate integration techniques – power rule, integration by parts, partial fraction integration, and substitute rule.

Know how to do the following in the calculator:

- Graph functions (or multiple functions)
- Graph derivatives of functions
- Find maximum and minimum values
- Determine x-intercepts (roots, zeros, solutions)

Remember to approximate decimal answers to **3 decimal places** on any AP Calculus exam.

EXAM FORMAT – 90 minutes

Part A – no calculator (no more than 55 minutes)
Section I: Multiple Choice
Section II: Free Response

Part B – Calculator (at least 35 minutes)
Section I: Multiple Choice
Section II: Free Response