Things You Should Know/Be Able to Do

- (L6) State and use the Intermediate Value Theorem (e.g., Apex Calculus Section 1.5 Exercises 33-36; OpenStax Calculus Section 2.4 Exercises 150, 151, 152ab, 153)
- (D1) Use the limit definition of the derivative. (e.g., Apex Section 2.1 Exercises 6–12; OpenStax Section 3.2 Exercises 54–63, Section 3.2 Exercises 68–72).
- (D5, D6, D7) Use derivative rules to find derivatives. (e.g., Apex Section 2.3 Exercises 7, 11–14, 18, 22–25, 27, 28, 30–32, Section 2.4 Exercises 1, 2, 7–18, 20–22, 24, 27, 29, 38–41, Section 2.5 Exercises 6–9, 11–15, 21, 26, 27; OpenStax Section 3.3 Exercises 106–117, 122–129, Section 3.5 Exercises 175–184, 191–196, Section 3.6 Exercises 220–240, 245–252)
- (D4) Determine where a function is/is not differentiable and why. (e.g., OpenStax Section 3.2 Exercises 74–80)
- (D3) Write an equation for the tangent line to a function at a point. (e.g., Apex Section 2.3 Exercises 33, 36, 37, 38, Section 2.4 Exercises 31–33, Section 2.5 Exercises 29–31 (just the tangent line, not the normal line for all of these); OpenStax Section 3.3 Exercises 118–121, 133–139, Section 3.5 Exercises 185–190, Section 3.6 Exercises 241–242)
- (D2, A1) Solve derivative application (e.g., rates of change) problems and explain derivatives in context and abstractly (e.g., Apex Section 2.3 Exercises 9, 10; OpenStax Section 3.1 Exercise 51, Section 3.2 Exercise 97, Section 3.3 Exercise 145–148, Section 3.4 Exercises 150–159, 164, 165, Section 3.5 Exercises 200–204, Section 3.6 Exercises 253, 254, 259)
- (A3, related to A2)Sketch the graph of a function that satisfies given criteria. (e.g., OpenStax Section 3.2 Exercise 96)
- (A3, related to A2) Given the graph of a function, sketch the graph of its first and second derivatives. (e.g., Apex Section 2.1 Exercises 26–30, Section 2.2 Exercises 15–18, Section 2.4 Exercises 42–45; OpenStax Section 3.2 Exercises 64–67, Chapter 3 Review Exercises 386, 387)