MAC2311 Calculus I
Mid-Term Topic Outline

1. Determine the limit of a given function [as $x \to a$, $x \to a^-$, $x \to a^+$, $x \to \infty$, the function may be a polynomial, rational, piecewise, or trigonometric]
2. Apply the ε–δ definition of the limit [to find δ given ε or to prove a given limit], this includes limits as $x \to a$ and $x \to \infty$.
3. Determine the continuity of a given function [removable or essential]; be able to re-define a function to make it continuous.
4. Determine a constant k that will make a piecewise function continuous.
5. Find the derivative by the limit definition.
6. Sketch the graph of a function given information about the function & derivative [but not the function itself].
7. Find the derivative of a given function utilizing the basic differentiation techniques [3.2 – 3.5].
8. Find the slopes of tangent lines of given functions.
9. Find equations of tangent & normal lines of given functions.
10. Solve given related rate applications.
11. Solve associated applications of the derivatives found thus far.

Chapter Practice Exercises

Ch. 2	p. 111	1 – 33a, 41 – 56
Add'l Exer.	p. 113	3, 20, 22, generalized limits a & b, 25 – 30
Ch. 3	p. 206	1 – 64 eeo*, 85 – 86, 93 – 107 odd, 119 – 120
Add'l Exer.	p. 211	3, 12, 15 – 17

And study your Take-home and In-class quizzes