Mathematics 3208

Unit: Limits and Continuity

Calculus	
Specific Outcomes It is expected that students will:	**Achievement Indicators**
C1. Demonstrate an understanding of the concept of limit and evaluate the limit of a polynomial, square root, and rational function.	C1.1 Explore the concept of a limit, including one sided limits, using informal methods. C1.2 Establish that $\lim_{x\to\infty} \frac{1}{x} = 0,$ using informal methods. C1.3 Explore the concept of limit and notation used in expressing the limit of a function $f(x)$ as x approaches a^+, a^-, and a: $\lim_{x\to a^+} f(x), \lim_{x\to a^-} f(x)$ and $\lim_{x\to a} f(x)$. C1.4 Determine the value of the limit of a function as the variable approaches a real number • by using a table of values • by using a provided graph, including piecewise functions. C1.5 Apply the properties of limits including: • Sum Rule • Difference Rule • Product Rule • Constant Multiple Rule • Quotient Rule • Power Rule to solve problems. C1.6 Determine the value of the limit of a function as the variable approaches a real number • by substitution • by algebraic manipulation. C1.7 Evaluate one-sided limits using a graph. C1.8 Determine limits that result in infinity (infinite limits) C1.9 Evaluate limits of functions as x approaches infinity (limits at infinity). C1.10 Investigate the behavior of the horizontal asymptotes of a function using limits.

Unit: Limits and Continuity (Continued)

Calculus	
Specific Outcomes It is expected that students will:	**Achievement Indicators**
C2. Solve problems involving continuity.	C2.1 Explore the concept of continuity and discontinuity of a function informally. C2.2 Identify examples of discontinuous functions and the types of discontinuities they illustrate, such as removable, infinite, jump, and oscillating discontinuities. C2.3 Determine whether a function is continuous at a point from its graph. C2.4 Determine whether a function is continuous at a point using the definition of continuity. C2.5 Determine whether a function is continuous on an interval. C2.6 Rewrite removable discontinuities by extending or modifying a function.