



PAREF Southcrest

BASIC CALCULUS 12-STEM TOPIC OUTLINE (1st Semester)

MIDTERM
Overview of the subject Basic Calculus and its importance Types of functions and their graphs
Graphing different kinds of functions
Functions as mathematical models
Graphical introduction to limits Definition of a limit of a function Limit Theorems Techniques of evaluating the limit of a function
One-sided limits Infinite limits Limits at infinity Squeeze Theorem
Limits of exponential, logarithmic, trigonometric functions and inverse trigonometric functions using the table of values and graphs of the functions
Continuity <ul style="list-style-type: none"><input type="checkbox"/> Continuity of a function at a number<input type="checkbox"/> Continuity on an interval Discontinuity <ul style="list-style-type: none"><input type="checkbox"/> Types of Discontinuity



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FINALS
Introduction on Derivatives Tangent line and normal line to the graph of a function at a given point Differentiating functions using limit notation
Eight basic differentiation rules and their proofs Differentiation of Algebraic functions
Differentiating exponential, logarithmic, trigonometric and inverse trigonometric functions
Higher-order derivatives Implicit differentiation
Derivative as a rate of change Related rates and optimization
Integration <ul style="list-style-type: none">❑ Indefinite integral❑ Fundamental integration formulas Integration by Substitution
Integral of exponential, logarithmic, and trigonometric functions