

Math 113
Topics to be covered on Final Exam
Thursday, May 10 & Friday, May 11
Chapter 5-12 without 10

- Definition of Integral
- Fundamental Theorem of Calculus
- Other Definitions & Theorems
- Indeterminant Forms and L'Hopital's Rule
- Techniques of Integration
 - Antiderivative of all basic functions
 - U-substitution
 - Integration by Parts
 - Trigonometric Integrals
 - Trig Sub
 - Partial Fractions
 - Completing the Square
 - Integrating Rational Functions
 - Improper Integrals
- Applications of Integration
 - Area between Curves
 - Volumes with Disk/Washer Method
 - Volumes with Cylindrical Shell Method
 - Average Value
 - Arclength
 - Surface Area
- Sequences
- Series
 - Definition
 - Find the sum
 - Divergence Test
 - Integral Test
 - Comparison Tests
 - Alternating Series Test

- Ratio Test
- Root Test
- Power Series
 - Finding power series
 - Radius of Convergence
 - Interval of Convergence
 - integrals/derivatives of series
 - Taylor Series
 - Maclaurin Series
- Polar Coordinates
 - converting polar to Cartesian
 - converting Cartesian to polar
 - converting equations to Cartesian
 - converting equations to parametric
- Parametric Equations
 - finding derivatives
 - finding equations of tangent lines
 - finding critical points
 - finding area
 - finding arclength
 - finding surface area
- Conic Sections
 - identifying the curve
 - give general forms
 - sketch the curve