

# Final Exam Topics Math 166 Fall 2005

## Chap. 9

(improper integrals with  $\infty$  in the limit)

## Chap. 10 Series + Sequences

Series, sequences -

limits

collapsing series

squeeze thm

harmonic series

partial sums

geometric series

tests for convergence + divergence of series

n-th term test

integral test

ratio test

bounded sum

ordinary + limit comparison tests

linearity properties

Alternating series test

Absolute convergence + conditional conv.

Power Series - radius of convergence

Operations on power series

Taylor + Maclaurin series -

Taylor's Thm., Taylor polynomial + approximation

Binomial Series

Use of remainder of Taylor series represented (error)

## Chap. 12 - Conics, Polar Coordinates

Graphing parabolas, ellipses, hyperbolas + vertices, foci, directrices, major + minor axes asymptotes for hyperbola

Finding properties of ellipse + hyperbola

Slope + equation of tangent lines

Translation + Rotation of axes

- completing square

- getting rid of "cross product" term

## Polar Coordinates

- equations of curves
- graphs of curves
- area
- slope of tangent line