

REVIEW FOR 136.275 April 11, 2005

Chapter 10 (10.2-10.10), 12(12.7), Chapter 13 (13.1 –13.5), Chapter 14 (14.1 – 14.8), Chapter 15 (15.1-15.5,15.7-15.8) , Chapter 16 (16.1-16.4) from Anton

DEFINITIONS (and formulas):

10. sequence, limit of a sequence, convergent series, geometric series, p-series, absolute and conditional convergence, Taylor series, radius and interval of convergence, Lagrange form of the n-th remainder.
(p.691- conv.tests; p.708 – Taylor series table)
- 12.7. quadric surfaces (types), trace.
13. limit (of a vector valued function), continuity, derivative, arc length, arc length parametrization, unit tangent, normal and binormal vectors, curvature, radius of curvature.
14. level curves and level surfaces, general limits, limits along a curve, continuity, partial derivatives, differentiability, gradient vector, tangent plane, chain rules, directional derivatives, normal line, critical points, local and absolute extremes.
15. double and triple Riemann sum, double and triple integrals, iterated integrals, type I and type II regions, area as a double integral, volume as a triple integral, surface area of surfaces of form $z=f(x,y)$, integrals in polar, cylindrical and spherical coordinates, Jacobian, change of variables formulas.
16. vector field, conservative field, potential function, curl, curve integrals, work .

THEOREMS:

10. Squeeze theorem, thm. (lemma) on monotonic bounded sequences, divergence test thm., integral test, comparison, ratio and root tests, alternating series test thm., thm. on power series representation of functions, thm. on differentiation and integration of power series.
13. thm. on differentiability of a vector valued function.
14. relationships between general limits and limits along curves, equality of mixed partial derivatives, differentiability and continuity, first order partial derivatives and differentiability, directional derivatives and gradient, properties of the gradient, extreme value theorem, second partial derivatives test.
15. Fubini's Thm.(thm. on double and triple integrals and iterated integrals), continuous functions are integrable over rectangles, inverse mapping theorem.
16. reparametrization, reversal of orientation, Green's theorem, thm. on equivalent conditions for a conservative field.

